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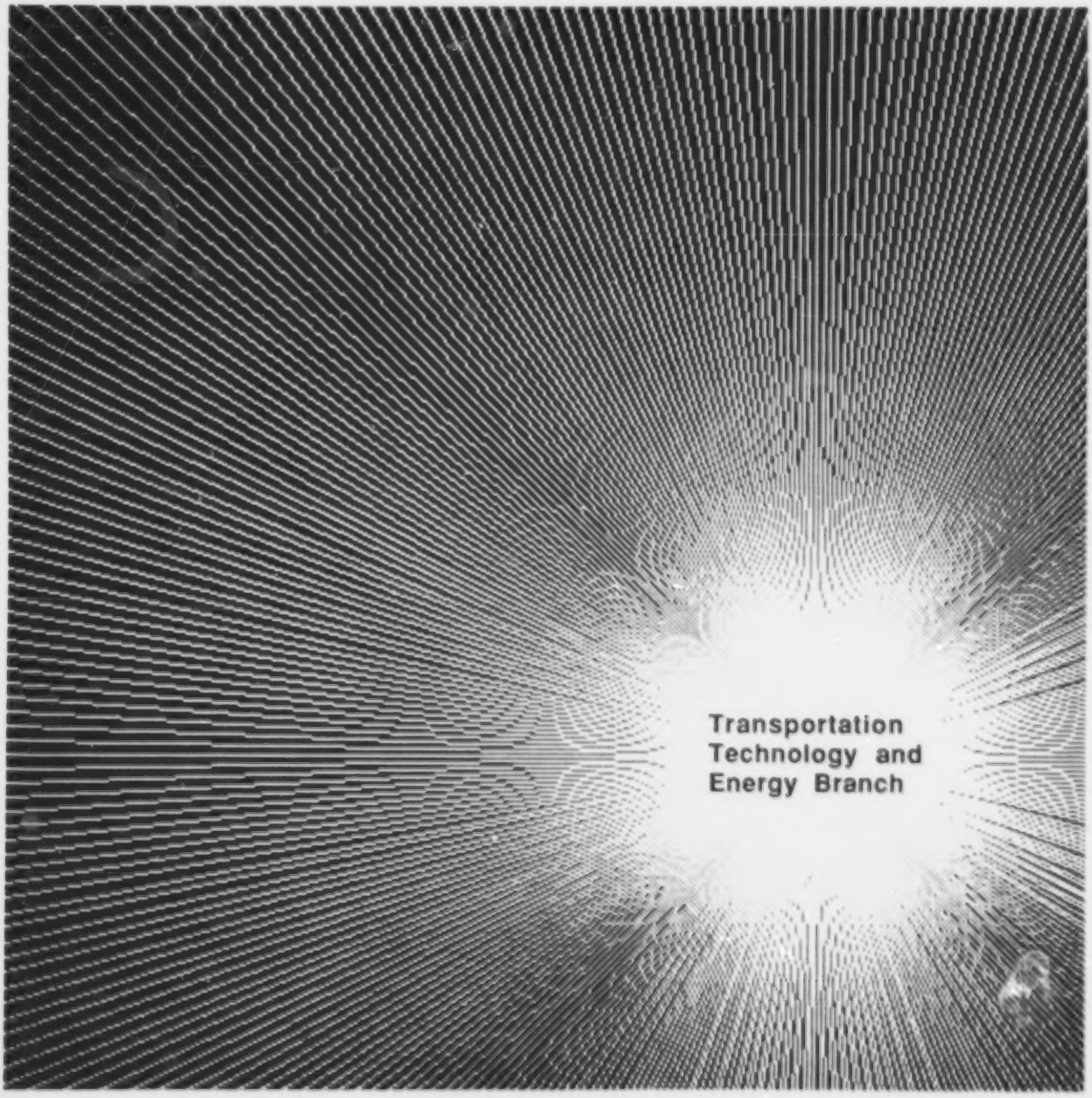

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# Transportation Energy Data Report

## Volume 5

TEPO-91-01

# Technical Report Documentation Page

## Transportation Energy Data Report

### Volume 5

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| Prepared by: | Transportation Energy and Productivity Office,<br>Transportation Technology and Energy Branch |
| Report No.: | TEPO-91-01 |
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| Abstract: | The aim of the Transportation Energy and Productivity Office (TEPO) is to initiate and co-ordinate actions that will reduce Ontario's transportation oil use by increasing the efficiency with which oil products are used, by reducing travel requirements, and by introducing alternatives to oil products as transportation fuels.<br><br>This report is produced in response to the need expressed by government agencies, research groups, and businesses for a central source of transportation energy data. These data are collected and published in a comprehensive format under one cover for greater convenience. This is the fifth volume of the series published.<br><br>The basis for collection of data in some cases has changed from previous volumes. This is due to past inconsistent definitions applied to data collection, and the diverse data sources used for the report. The historical data in some tables and graphs were also updated and hence are different from previous volumes of the Data Report. This is clarified with footnotes to the tables.<br><br>The Transportation Energy Data Reports are used to monitor current trends in transportation energy demand, to ascertain relationships between various transportation energy variables, and to provide a forum for the presentation of transportation energy data in graphic and tabular form. |
| Key words: | Energy data, fuel consumption, energy cost, energy taxes, vehicle registration |
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TEPO-91-01

# Transportation Energy Data Report

## Volume 5

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**Transportation Technology and Energy Branch**

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# SECTION ONE:

# TRANSPORTATION ENERGY USE AND SUPPLY

**1.1/ Transportation Energy Consumption by Province, 1988**

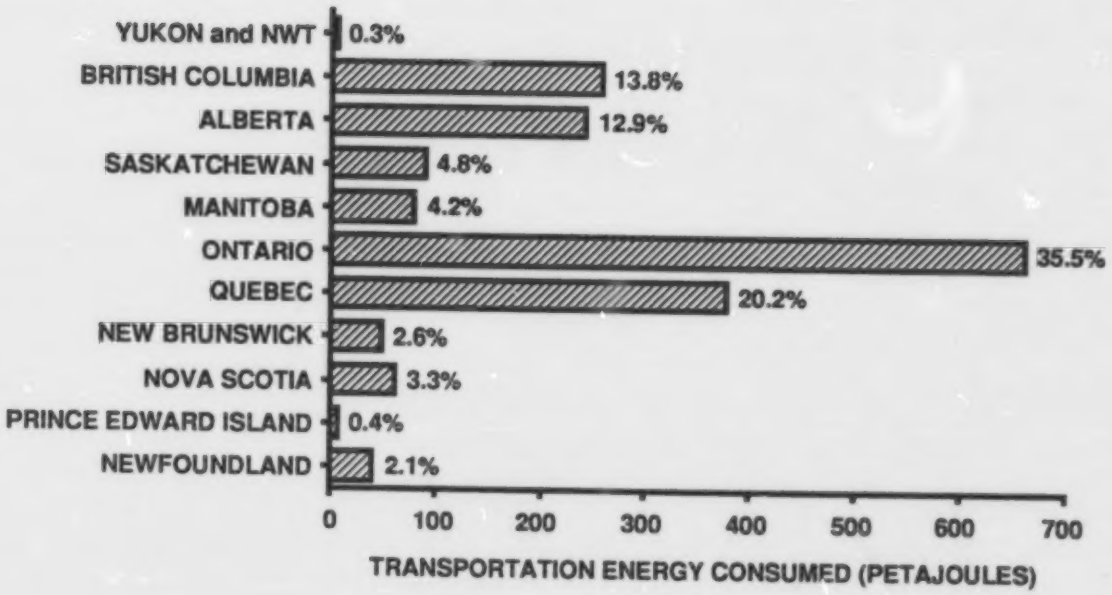
As shown in Figure 1.1, the largest proportion of transportation energy consumption within Canada occurs in the province of Ontario. Ontario accounts for 35.5% for Canada's total transportation energy use. Although this might be expected, given the greater number of motor vehicles, licensed drivers, and kilometres of highway, it reveals that Ontario is greatly dependent on changes affecting transportation energy consumption, supply, and price.

**Table 1.1/ Transportation Energy Consumption by Province, 1989**

| Province | Transportation Energy Consumption (Petajoules)* | Percent |
|---|---|---|
| Newfoundland | 39.1 | 2.1 |
| Prince Edward Island | 6.9 | 0.4 |
| Nova Scotia | 61.5 | 3.3 |
| New Brunswick | 48.3 | 2.6 |
| Quebec | 377.3 | 20.2 |
| Ontario | 663.5 | 35.5 |
| Manitoba | 79.1 | 4.2 |
| Saskatchewan | 89.0 | 4.8 |
| Alberta | 241.8 | 12.9 |
| British Columbia | 258.2 | 13.8 |
| Yukon and NWT | 5.8 | 0.3 |
| TOTAL | 1870.5 | 100.0 |

**Source:** Statistics Canada (57-003)

* See Appendix B for conversions




**Source:** Statistics Canada (57-003)

**Figure 1.1/ Transportation Energy Consumption by Province, 1989**

## 1.2/ Ontario's Primary Energy Sources, 1988

The largest proportion (86.7%) of Ontario's total energy supply originates within Canada, with 46.9% coming from the province of Alberta in the form of crude oil and natural gas. Ontario generates 32.5% of its own energy, primarily through nuclear-powered, coal, or hydro-generated electricity. Surprisingly, none of the energy consumed in Ontario originates from outside of North America. However, the entire world market dictates supply and pricing; therefore, independence from foreign sources is illusory.

**Source:** Ministry of Energy

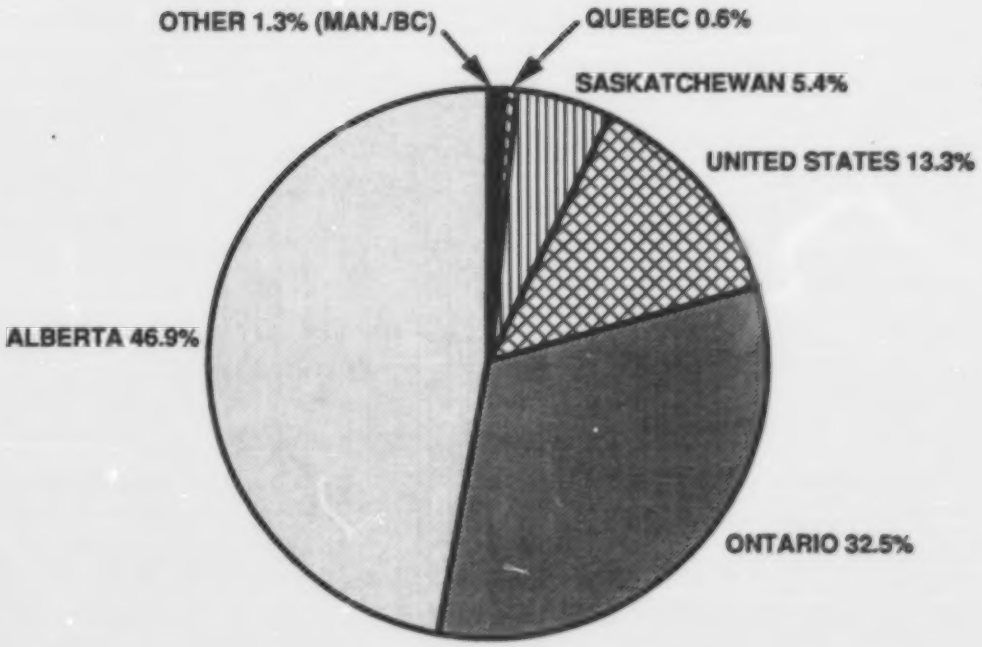



**Figure 1.2/ Ontario's Primary Energy Sources, 1988**

## 1.3/ Ontario's Primary Energy Consumption, 1989

Figure 1.3 shows the diversified nature of Ontario's primary energy sources. Crude oil, natural gas, coal, water power, and uranium each account for more than 10% of the total energy supply. Although crude oil consumption has decreased from the reported 31.3% in 1984 to 28.4%, it still constitutes the largest source of energy in the province. Natural gas remains the second largest source, while natural gas liquids (such as propane) are becoming increasingly popular as energy sources, now accounting for 1.8% of total consumption.

**Source:** Ministry of Energy

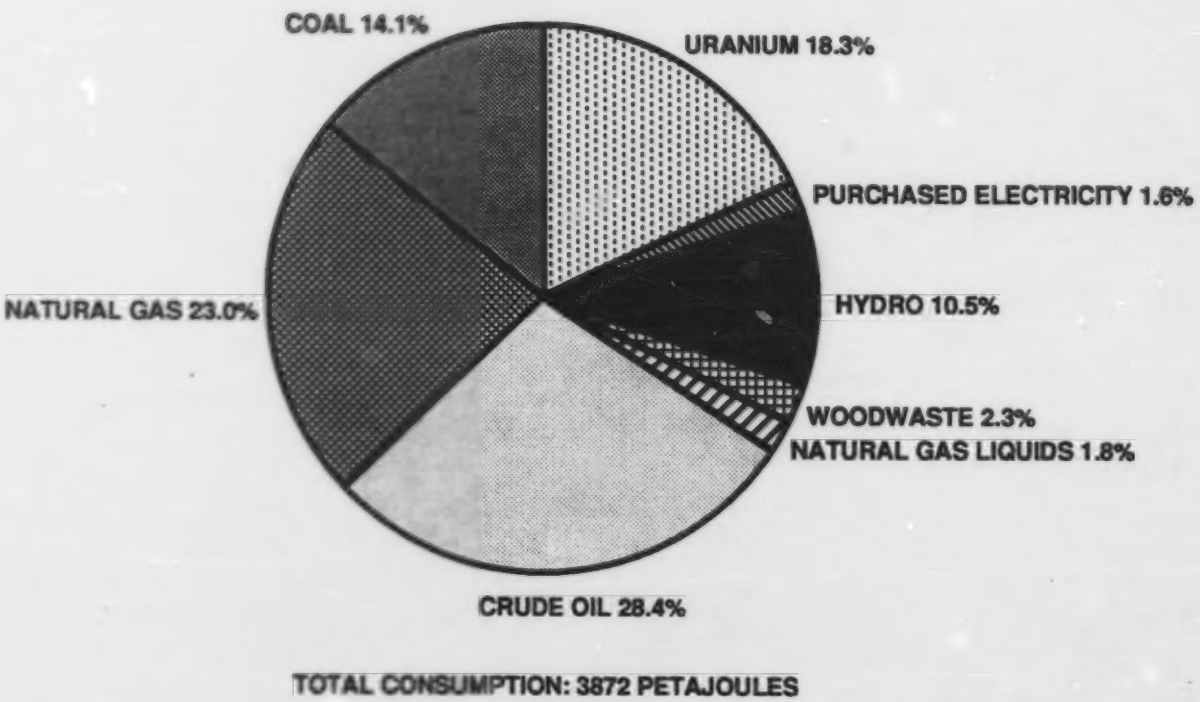



**Figure 1.3/ Ontario's Primary Energy Consumption, 1989**

**1.4/ Transportation Energy Use by Fuel Type, Ontario, 1989**

In the transportation sector, almost 70% of the energy consumed is in the form of gasoline. The next largest share, accounting for 18.66% is diesel fuel. Aviation fuel, heavy fuel oil, propane, and electricity combine to account for the remaining 12.5% of transportation energy consumed. Natural gas is also being used as a transportation fuel in Ontario; however, its effect on total transportation energy use is minimal.

**Source:** Statistics Canada

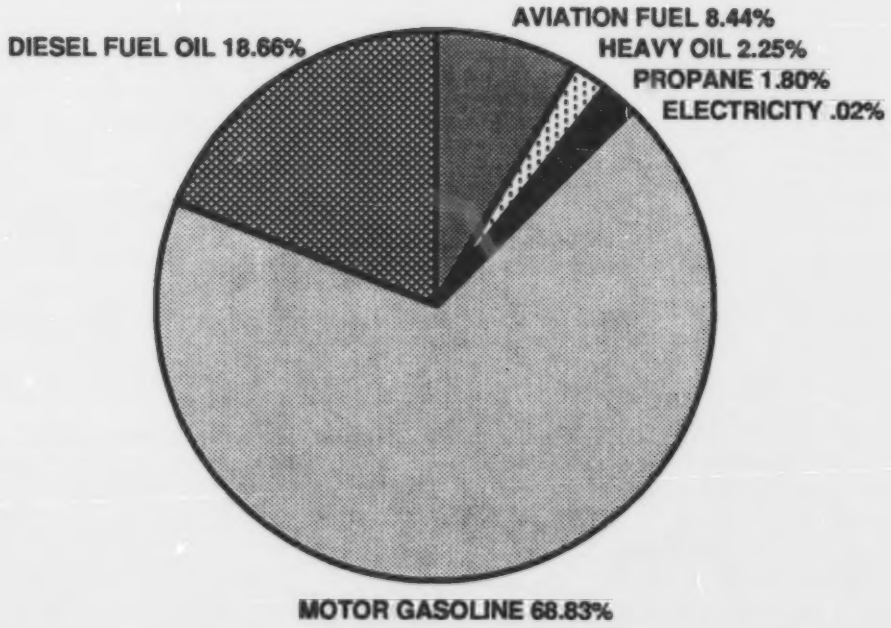



**Figure 1.4/ Transportation Energy Use by Fuel Type, Ontario, 1989**

**1.5/ Transportation Energy Use by Mode, Ontario, 1989**

As shown in Figure 1.5, in 1989 road transportation accounted for 84.63% of the energy consumed by the transportation sector. A combination of commercial fuel sales (16.36%) and retail pump sales (68.27%) represent the total amount of energy consumed by road transportation. The remaining modes of transportation (air, marine, and rail) collectively account for 22.26% of the energy consumption.

**Source:** Statistics Canada (57-003)

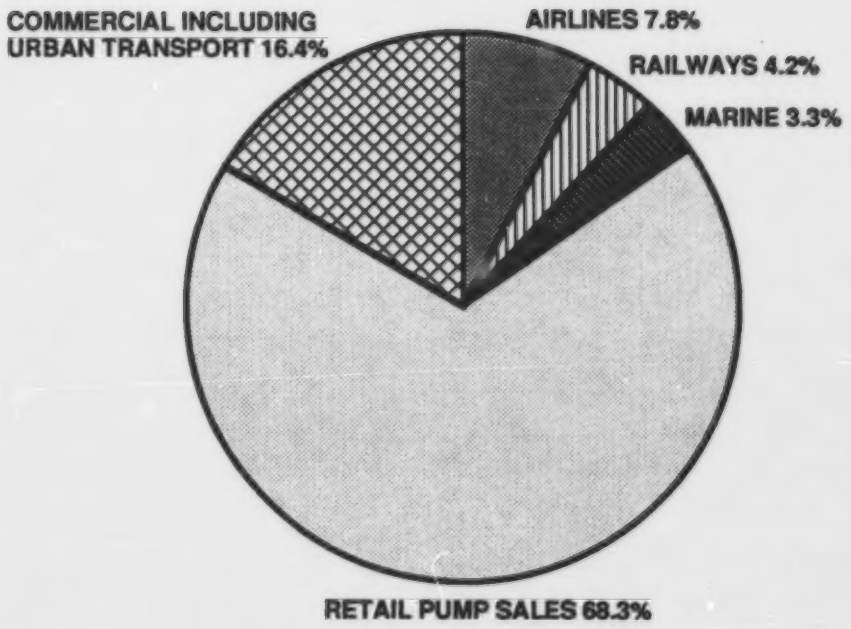



**Figure 1.5/ Transportation Energy Use by Mode, Ontario 1989**

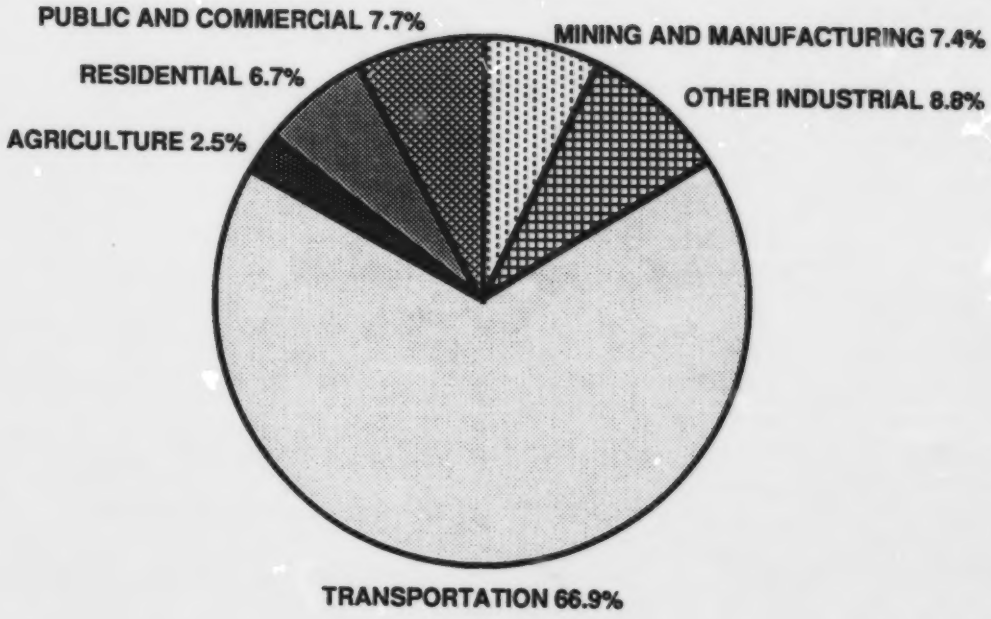
### 1.6/ Refined Petroleum Product Use by Major Consuming Sector, Ontario, 1989

The largest proportion of the total refined petroleum products used in Ontario are consumed by the transportation sector. This sector accounts for an overwhelming 67% of all petroleum products. Figure 1.6 depicts the significance of petroleum products, conservation, and substitution related to the transportation sector. Any change in the supply, demand, or pricing of petroleum products will have a much more profound impact on the transportation sector than on the remaining sectors of the economy. The transportation sector is unique, when compared to the other sectors, in that it is almost totally dependent on petroleum products as its motive fuel. The other user sectors have been switching from petroleum-based products to less expensive alternatives.

**Table 1.6/ Refined Petroleum Product Use by Major Consuming Sector, Ontario, 1989**

| Sector | Refined Petroleum Products Use (Petajoules) | Percent |
|---|---|---|
| Mining and Manufacturing | 66.9 | 7.4 |
| Other Industry | 79.7 | 8.8 |
| Transportation | 605.0 | 66.9 |
| Agriculture | 22.2 | 2.5 |
| Residential | 60.4 | 6.7 |
| Public and Commercial | 69.5 | 7.7 |
| TOTAL | 903.7 | 100.0 |

**Source:** Statistics Canada (57-003)




**Source:** Statistics Canada (57-003)

**Figure 1.6/ Refined Petroleum Product Use by Major Consuming Sector, Ontario, 1989**

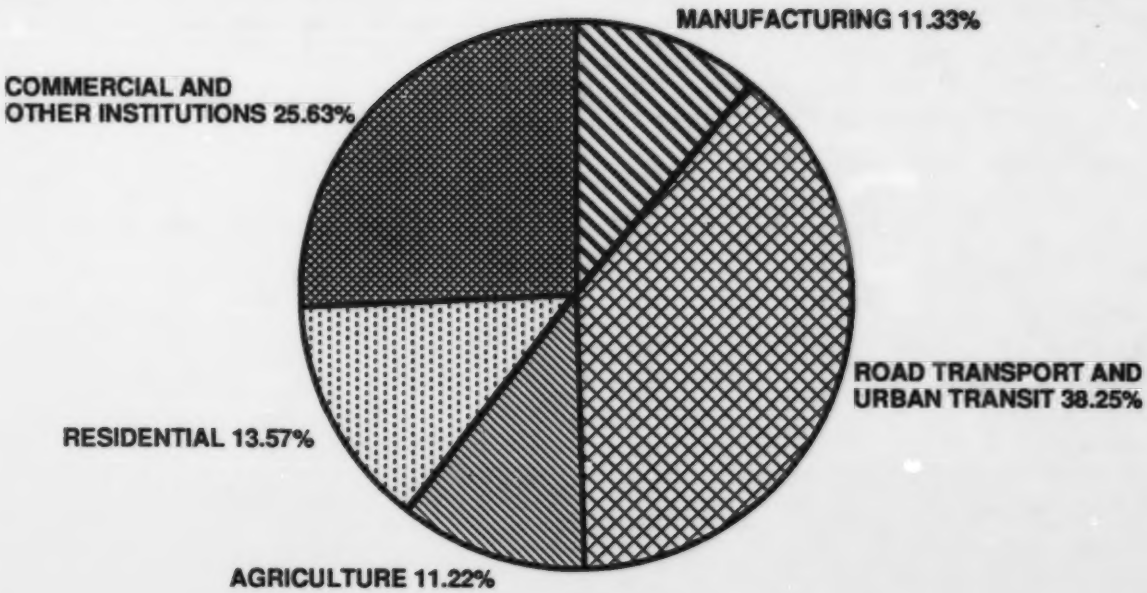
**Table 1.7/ Propane Use by Major Consuming Sector, 1989**

Ontario has only recently begun using propane as a transportation fuel. In 1982, road transport and urban transit accounted for only 6.9% of propane consumption. Once urban transit began using propane in July 1982, and a concerted effort to convert motor vehicles to propane was implemented, the number of vehicles using propane escalated. In 1984, road transport and urban transit accounted for 24% of Ontario's propane consumption. By 1989, this figure increased, as road transport and urban transit accounted for 38% of Ontario's propane consumption.

**Table 1.7/ Propane Use by Major Consuming Sector, 1989**

| Sector | Energy Consumed (Terajoules) | Percent |
|---|---|---|
| Manufacturing | 3 295 | 11.3 |
| Road Transport and Urban Transit | 11 129 | 38.3 |
| Agriculture | 3 265 | 11.2 |
| Residential | 3 949 | 13.6 |
| Commercial and Other Institutions | 7 455 | 25.6 |
| TOTAL | 29 093 | 100.0 |

**Source:** Statistics Canada (57-003)




**Source:** Statistics Canada (57-003)

**Figure 1.7/ Propane Use by Major Consuming Sectors, Ontario, 1989**

### 1.8/ Provincial Breakdown of Conversions Receiving Federal Propane Conversion Grants, October 1980 - March 31, 1986

Although the percentages for those provinces receiving federal propane conversion grants differ from the actual percentages for propane vehicle distribution, the figures can be used as a rough estimate of propane use. The percentages indicate that almost half of the propane vehicles in Canada are found in Ontario. Alberta and British Columbia also have a significant proportion of the propane vehicles in Canada.

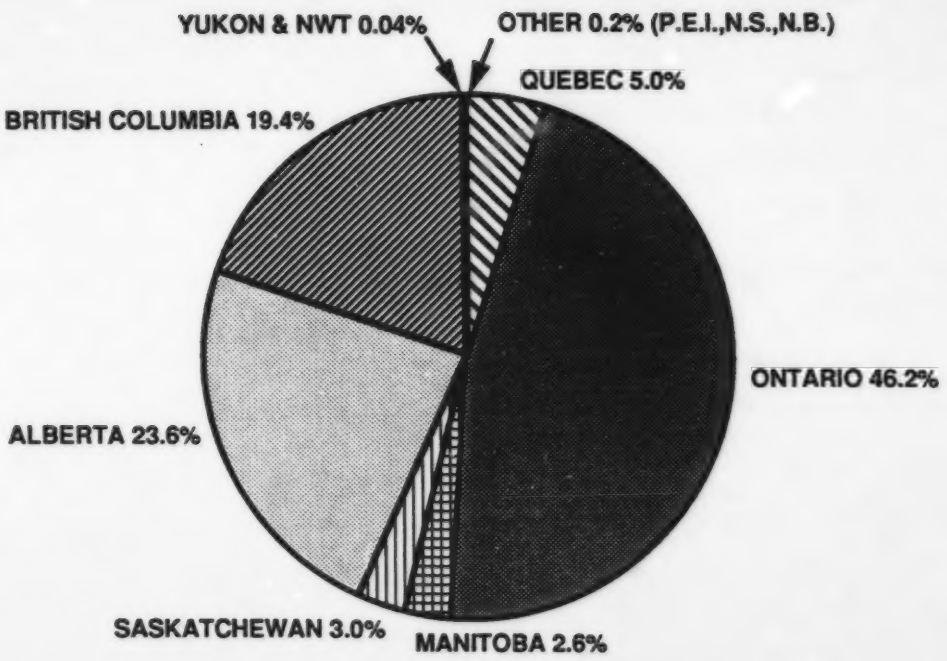
**Table 1.8/ Provincial Breakdown of Conversions Receiving Federal Propane Conversion Grants, October 1980 – March 1986**

| Province | Vehicles Converted | Percentage |
|---|---|---|
| Maritimes* | 140 | 0.2 |
| Quebec | 3 502 | 5.0 |
| Ontario | 32 797 | 46.2 |
| Manitoba | 1 848 | 2.6 |
| Saskatchewan | 2 153 | 3.0 |
| Alberta | 16 740 | 23.6 |
| British Columbia | 13 803 | 19.4 |
| Yukon & Northwest Territories | 29 | – |
| TOTAL | 71 012 | 100.0 |

**Source:** Energy, Mines and Resources Canada

* includes Prince Edward Island, Nova Scotia, and New Brunswick

NOTE: Not all vehicles converted to propane received the grant (e.g., government vehicles). The actual number of propane vehicles in Ontario grew from about 1000 in 1981 to more than 66 000 in 1988. Today, the population is about 50 000 vehicles.




**Source:** Energy, Mines and Resources Canada

**Figure 1.8/ Provincial Breakdown of Conversions Receiving Federal Propane Conversion Grants, October 1980 – March 31, 1986**

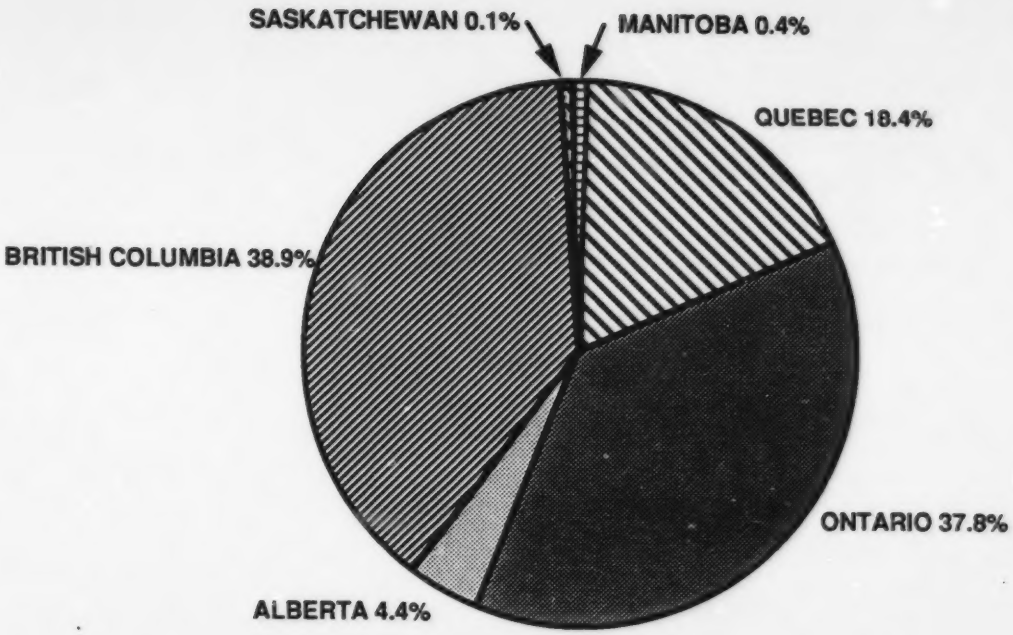
## 1.9/ Provincial Breakdown of Conversions Receiving Federal Natural Gas Grants, to 1990

In 1982, the Federal Government began a Natural Gas Conversion Grant program to encourage drivers to switch to natural gas. To date, 24 297 vehicles in the country have been converted under this program. British Columbia has the greatest percentage of conversions at 38.93%. Ontario is second in the number of conversions at 37.73%. Although the percentages for those provinces receiving federal natural gas conversion grants differ from the actual percentages for natural gas vehicle distribution, the figures can be used as a rough estimate of natural gas use.

**Table 1.9/ Provincial Breakdown of Conversions Receiving Federal Natural Gas Grants, to 1990**

| PROVINCE | Beginning to Dec 31/85 | Jan. 1/86 to Dec. 31/86 | Jan. 1/87 to Dec. 31/87 | Jan. 1/88 to Dec. 31/88 | Jan. 1/89 to Dec. 31/89 | Jan. 1/90 to Dec. 31/90 | Total Vehicles Converted | Percentage |
|---|---|---|---|---|---|---|---|---|
| Quebec | 2156 | 1093 | 710 | 279 | 45 | – | 4474 | 18.41 |
| Ontario | 1524 | 1296 | 1438 | 1458 | 1668 | 99 | 9167 | 37.73 |
| Alberta | 511 | 119 | 173 | 22 | 70 | – | 1062 | 4.37 |
| British Columbia | 3142 | 1807 | 1958 | 1275 | 342 | 17 | 9459 | 38.93 |
| Saskatchewan | 17 | – | 15 | 1 | – | – | 33 | 0.14 |
| Manitoba | 1 | 28 | 36 | – | 19 | – | 102 | 0.42 |
| **Total** | **7351** | **4343** | **4330** | **3035** | **2114** | **116** | **24297** | **100.00** |

**Source:** Energy Mines and Resources Canada




**Source:** Energy, Mines and Resources Canada

**Figure 1.9/ Provincial Breakdown of Conversions Receiving Federal Natural Gas Conversion Grants, to 1990**

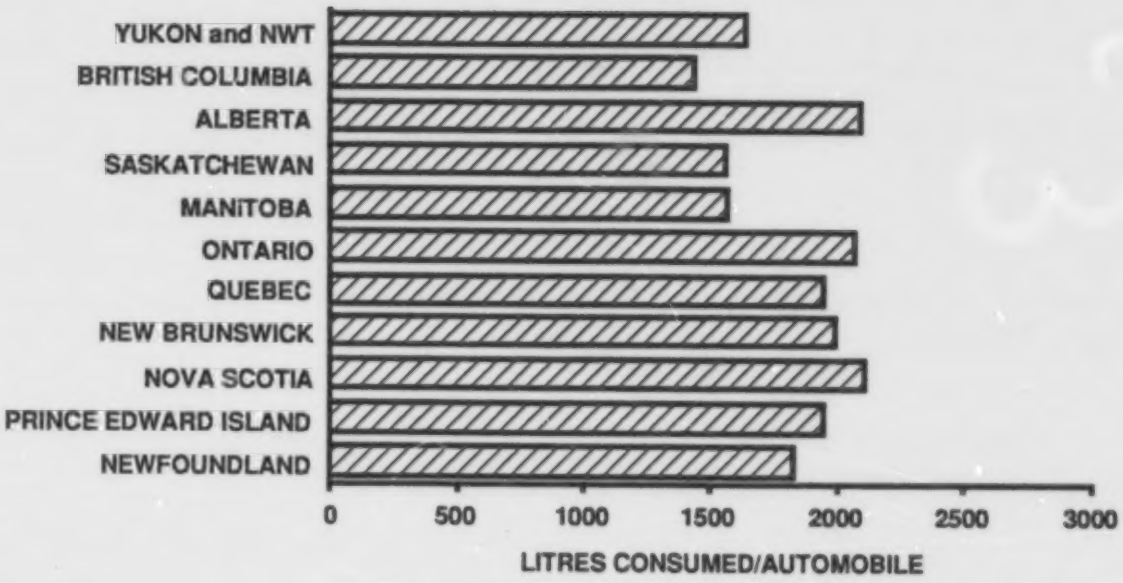
**1.10/ Average Number of Litres of Gasoline Consumed per Automobile, by Province, 1988**

The average fuel consumption for an automobile in Ontario is approximately 2100 L annually. Ontario's consumption ranks third among the provinces. There seems to be little correlation between the regions of Canada and the average fuel consumption per automobile, except that western provinces generally have proportionally less fuel consumed per automobile.

**Table 1.10/ Average Number of Litres of Gasoline Consumed per Automobile, by Province, 1988**

| Province | Road Vehicle Registrations (thousands) | Gasoline Consumed (megalitres) | Number of Litres Per Vehicle |
|---|---|---|---|
| Newfoundland | 307 | 561.5 | 1829 |
| Prince Edward Island | 82 | 159.5 | 1945 |
| Nova Scotia | 512 | 1081.1 | 2112 |
| New Brunswick | 452 | 902.5 | 1997 |
| Quebec | 3 432 | 6673.5 | 1944 |
| Ontario | 5 804 | 12015.4 | 2070 |
| Manitoba | 770 | 1204.3 | 1564 |
| Saskatchewan | 755 | 1175.2 | 1557 |
| Alberta | 1 820 | 3818.2 | 2098 |
| British Columbia | 2 350 | 3368.8 | 1434 |
| Yukon and North West Territories | 51 | 83.6 | 1639 |

**Source:** Statistics Canada (57-003, 53-219)




**Source:** Statistics Canada (57-003, 53-219)

**Figure 1.10/ Average Number of Litres of Gasoline Consumed per Automobile, by Province, 1988**

**1.11/ Motor Gasoline and Diesel Fuel Consumption, Ontario, 1975-1990**

Despite a slight increase in 1984, motor gasoline consumption by Ontario's transportation sector decreased from 1980-1986. Since 1986, there has been a slow increase in the amount of fuel used by Ontario's transportation sector. This increase could be due to the fact that there has been an increase in the number of motor vehicle registrations.

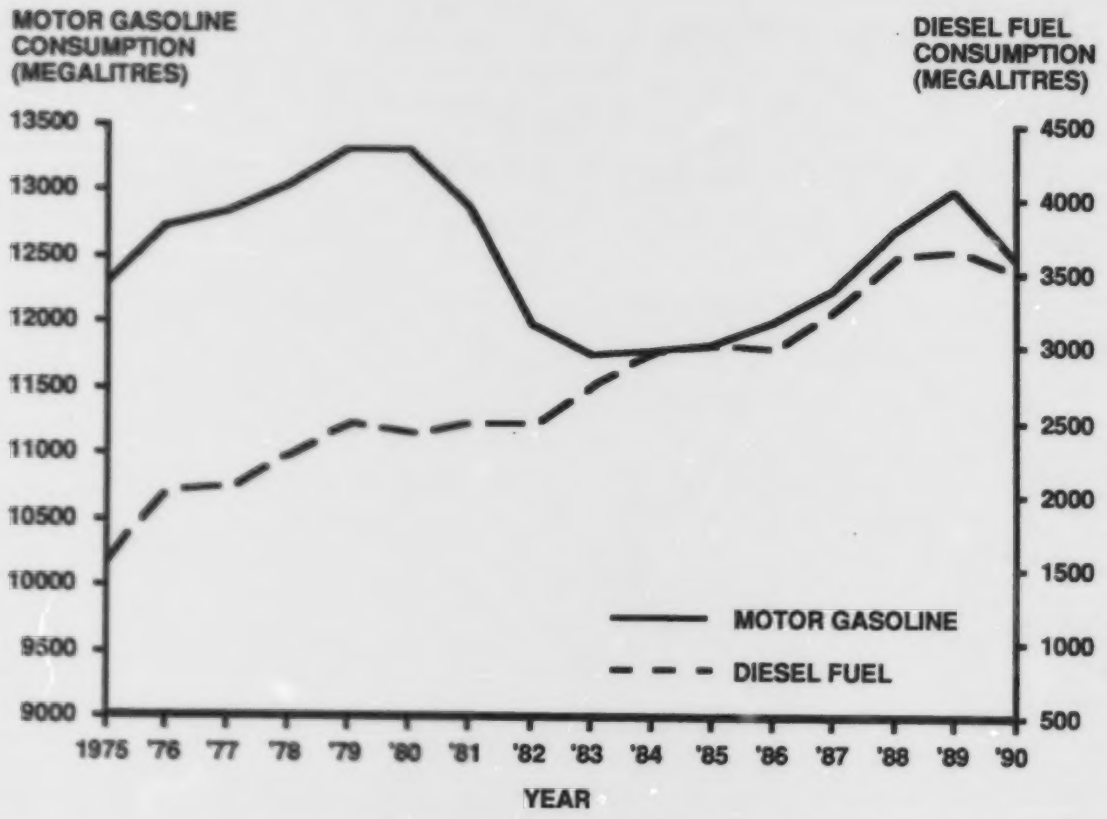
Diesel fuel consumption has risen 126% since 1975. This growth can be attributed to an increase in the number of trucks, and the trend away from vehicles powered by motor gasoline toward vehicles powered by other forms of transportation fuel, such as diesel fuel.

**Table 1.11/ Motor Gasoline and Diesel Fuel Consumption, Ontario, 1975-1990**

| YEAR | GASOLINE (megalitres) | DIESEL FUEL (megalitres) |
|---|---|---|
| 1975 | 12 303 | 1 542 |
| 1976 | 12 721 | 2 022 |
| 1977 | 12 838 | 2 042 |
| 1978 | 13 031 | 2 262 |
| 1979 | 13 312 | 2 489 |
| 1980 | 13 317 | 2 424 |
| 1981 | 12 875 | 2 482 |
| 1982 | 11 983 | 2 479 |
| 1983 | 11 765 | 2 759 |
| 1984 | 11 785 | 2 977 |
| 1985 | 11 838 | 3 002 |
| 1986 | 12 000 | 2 995 |
| 1987 | 12 257 | 3 275 |
| 1988 | 12 702 | 3 631 |
| 1989 | 13 010 | 3 641 |
| 1990 | 12 476 | 3 497 |

**Source:** Ministry of Energy statistics derived from Statistics Canada (57-003)

NOTE: The figures include non-highway agricultural consumption.




Note: Consumption for November and December of 1983 has been estimated

**Source:** Ministry of Energy, statistics derived from Statistics Canada (57-003)

**Figure 1.11/ Motor Gasoline and Diesel Fuel Consumption, Ontario, 1975 – 1990**

## 1.12/ Motor Gasoline Consumption by Transportation Mode, Ontario, 1978-1990

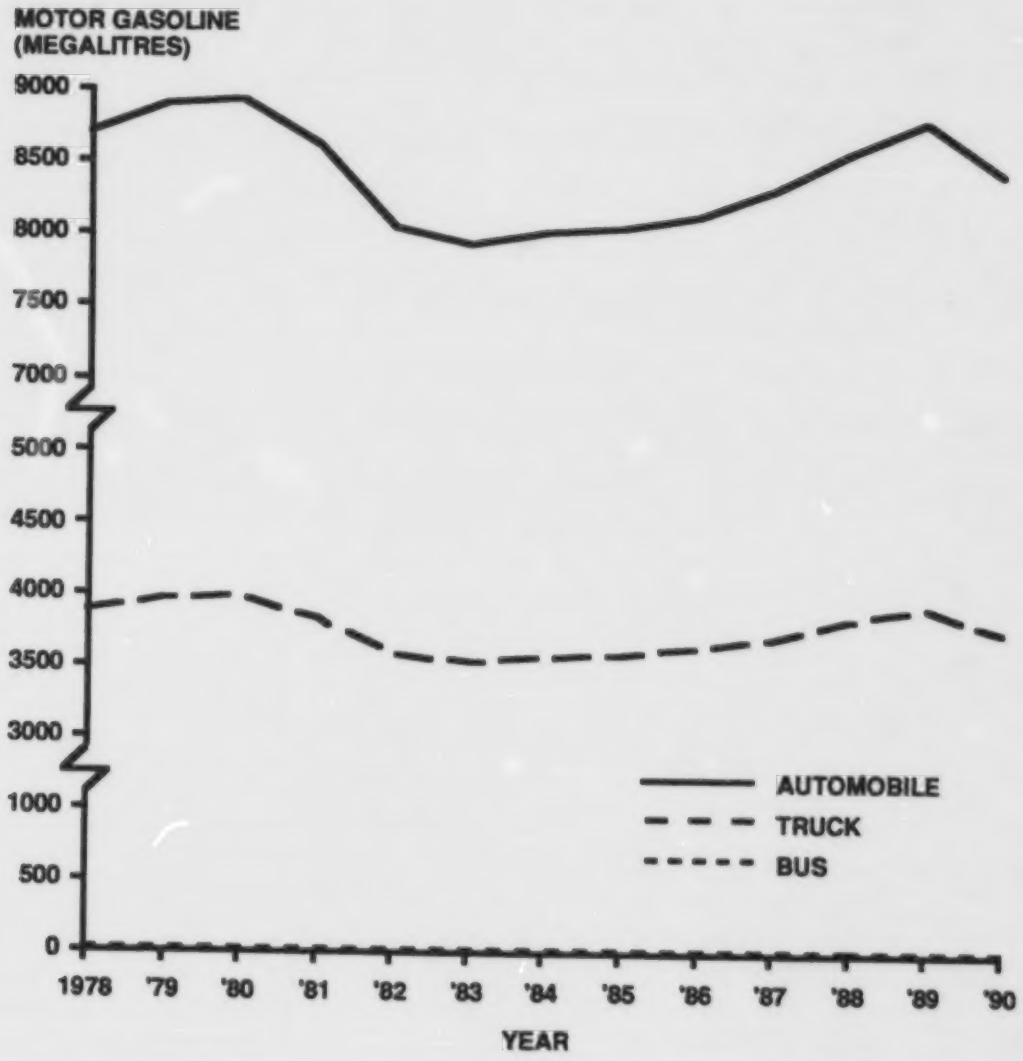
While the consumption of motor gasoline by buses has remained quite constant, truck and automobile consumption of gasoline has varied. Both truck and automobile consumption decreased from 1978 to 1984. This could be attributed to increased fuel efficiency and fuel conservation awareness. From 1984 to 1989, however, fuel consumption has been on the rise. This can be related to the increased number of car and truck registrations, and to the fact that people are commuting longer distances.

**Table 1.12/ Motor Gasoline Consumption by Transportation Mode, Ontario, 1978-1990**

| YEAR | BUS (megalitres) | TRUCK (megalitres) | AUTOMOBILES (megalitres) |
|---|---|---|---|
| 1978 | 13 | 3881 | 8708 |
| 1979 | 13 | 3968 | 8902 |
| 1980 | 13 | 3986 | 8943 |
| 1981 | 12 | 3845 | 8627 |
| 1982 | 12 | 3592 | 8060 |
| 1983 | 11 | 3538 | 7938 |
| 1984 | 12 | 3572 | 8015 |
| 1985 | 12 | 3590 | 8054 |
| 1986 | 12 | 3631 | 8146 |
| 1987 | 12 | 3710 | 8324 |
| 1988 | 12 | 3831 | 8594 |
| 1989 | 13 | 3920 | 8795 |
| 1990 | 12 | 3759 | 8433 |

**Source:** Ministry of Energy estimates

NOTE: These estimates assume the same modal distribution for each year, i.e., cars accounted for 69.1% of total consumption in 1978 and this level is held constant for subsequent years.




**Source:** Ministry of Energy estimates

**Figure 1.12/ Motor Gasoline Consumption by Transportation Mode, Ontario, 1978 – 1990**

**1.13/ Diesel Fuel Consumption by Transportation Mode, Ontario, 1978-1990**

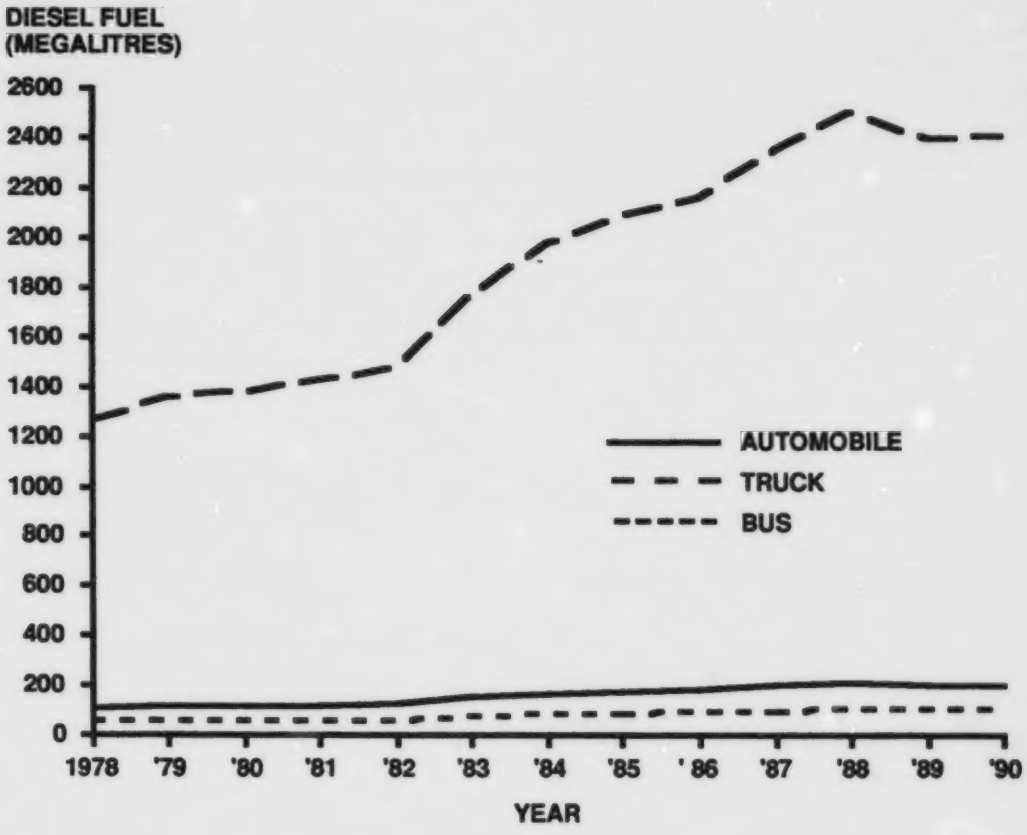
All modes of transportation have increased their diesel fuel consumption since 1978. The increase in diesel fuel consumption may have resulted from an increase in truck registrations, and an increased awareness of diesel fuel as an alternative to gasoline.

**Table 1.13/ Diesel Fuel Consumption by Transportation Mode, Ontario, 1979-1990**

| YEAR | BUS (megalitres) | TRUCK (megalitres) | AUTOMOBILES (megalitres) |
|---|---|---|---|
| 1978 | 107 | 1260 | 54 |
| 1979 | 115 | 1356 | 58 |
| 1980 | 116 | 1375 | 59 |
| 1981 | 120 | 1422 | 61 |
| 1982 | 125 | 1477 | 63 |
| 1983 | 150 | 1772 | 76 |
| 1984 | 167 | 1978 | 85 |
| 1985 | 176 | 2083 | 89 |
| 1986 | 183 | 2163 | 93 |
| 1987 | 199 | 2352 | 101 |
| 1988 | 212 | 2507 | 107 |
| 1989 | 203 | 2399 | 103 |
| 1990 | 204 | 2408 | 103 |

**Source:** Ministry of Energy Estimates

NOTE: These estimates assume the same modal distribution for each year, i.e., trucks accounted for 88.7% of total consumption in 1978 and this level is held constant for subsequent years.




**Source:** Ministry of Energy

**Figure 1.13/ Diesel Fuel Consumption by Transportation Mode, Ontario, 1978 – 1990**

**1.14/ Ontario's Regular Leaded Fuel Prices, Nominal and Real, 1975-1989**

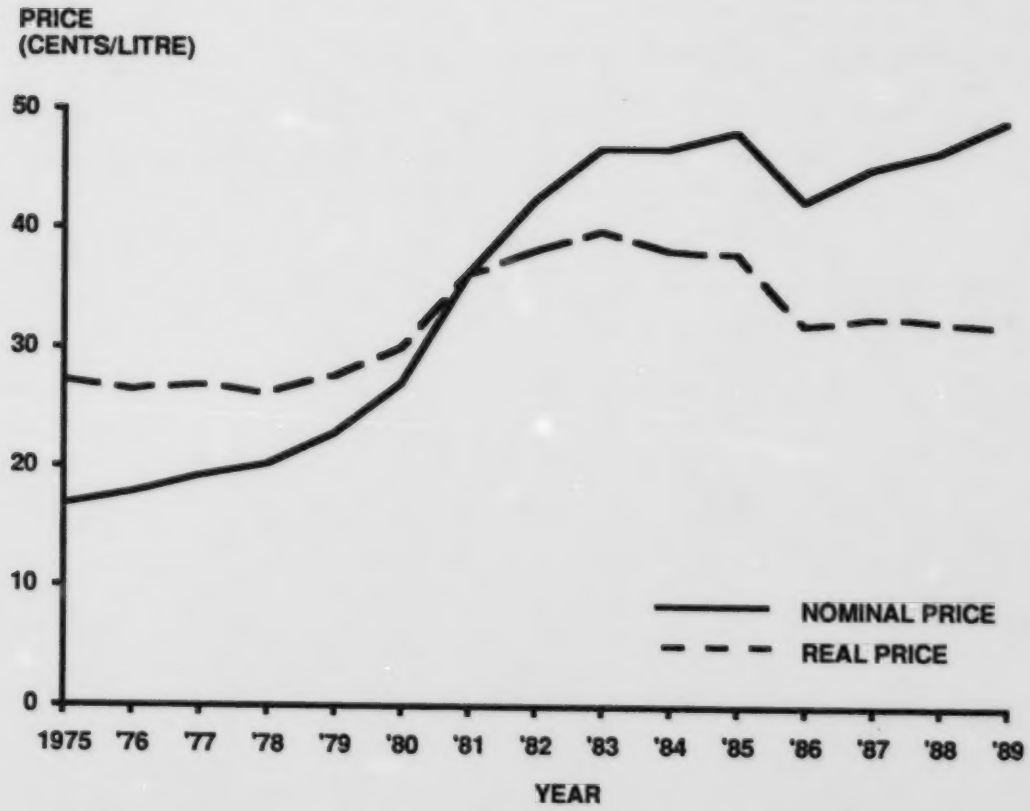
The nominal or actual price of motor gasoline in Ontario has increased by 216% since 1975. When the annual consumer price index, or the inflation rate is taken into account, the increase in the real price of motor gasoline is only 22.3%.

**Table 1.14/ Ontario's Regular Leaded Fuel Prices, Nominal and Real, 1975-1989**

| DATE | NOMINAL PRICE ¢/L | PRICE INDEX (1986 = 100) | REAL PRICE* ¢/L |
|---|---|---|---|
| 1975 | 16.2 | 44.2 | 36.7 |
| 1976 | 18.2 | 47.5 | 38.3 |
| 1977 | 19.7 | 51.3 | 38.4 |
| 1978 | 20.6 | 55.9 | 36.9 |
| 1979 | 22.5 | 61.0 | 36.9 |
| 1980 | 27.0 | 67.2 | 40.2 |
| 1981 | 36.4 | 75.5 | 48.2 |
| 1982 | 42.9 | 83.7 | 51.3 |
| 1983 | 44.0 | 88.5 | 49.7 |
| 1984 | 46.0 | 92.4 | 49.8 |
| 1985 | 48.3 | 96.0 | 50.3 |
| 1986 | 42.5 | 100.0 | 42.5 |
| 1987 | 45.2 | 104.4 | 43.3 |
| 1988 | 46.7 | 108.6 | 43.0 |
| 1989 | 51.2 | 114.0 | 44.9 |

**Source:** Ministry of Energy and Statistics Canada (62-001)

$$* \text{ Real Price} = \frac{\text{Nominal Price}}{\text{Price Index}} \times 100$$




**Source:** Ministry of Energy and Statistics Canada (62-001)

**Figure 1.14/ Ontario's Regular Leaded Fuel Prices, 1975 – 1989**

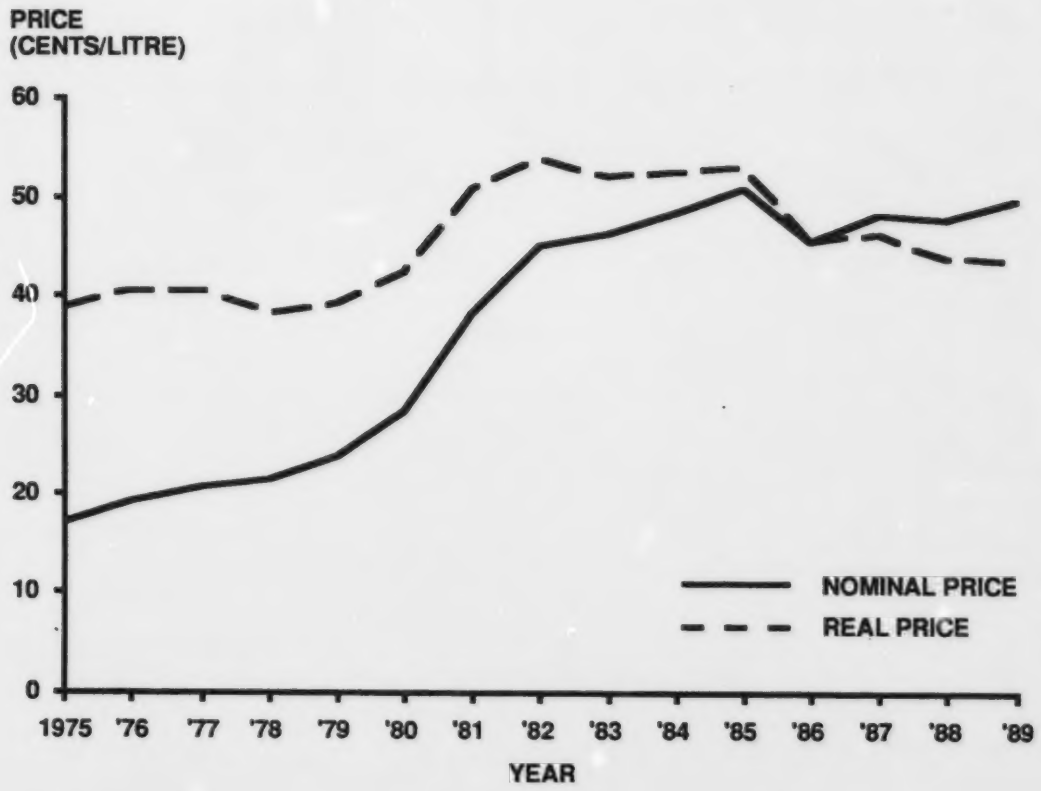
**1.15/ Ontario's Regular Unleaded Fuel Prices, Nominal and Real, 1975-1990**

Since 1975, the nominal or actual price of unleaded motor gasoline in Ontario has increased by 223%. However, when calculated using the consumer price index, the increase in the real price is only 29.5%

**Table 1.15/ Ontario's Regular Unleaded Fuel Prices, Nominal and Real, 1975-1990**

| YEAR | NOMINAL PRICE (cents/litre) | PRICE INDEX (1986 = 100) | REAL PRICE (cents/litre) |
|---|---|---|---|
| 1975 | 17.2 | 44.2 | 38.9 |
| 1976 | 19.3 | 47.5 | 40.6 |
| 1977 | 20.8 | 51.3 | 40.5 |
| 1978 | 21.4 | 55.9 | 38.3 |
| 1979 | 23.9 | 61.0 | 39.2 |
| 1980 | 28.5 | 67.2 | 42.4 |
| 1981 | 38.4 | 75.5 | 50.9 |
| 1982 | 45.0 | 83.7 | 53.8 |
| 1983 | 46.2 | 88.5 | 52.2 |
| 1984 | 48.6 | 92.4 | 52.6 |
| 1985 | 50.9 | 96.0 | 53.0 |
| 1986 | 45.5 | 100.0 | 45.5 |
| 1987 | 48.2 | 104.4 | 46.2 |
| 1988 | 47.7 | 108.6 | 43.9 |
| 1989 | 49.8 | 114.0 | 43.7 |
| 1990 | 55.6 | 119.5 | 46.5 |

**Source:** Ministry of Energy and Statistics Canada (62-001)




**Source:** Ministry of Energy and Statistics Canada (62-001)

**Figure 1.15/ Ontario's Regular Unleaded Fuel Prices, 1975 – 1989**

### 1.16/ Ontario's Propane Fuel Prices, Nominal and Real, 1981-1989

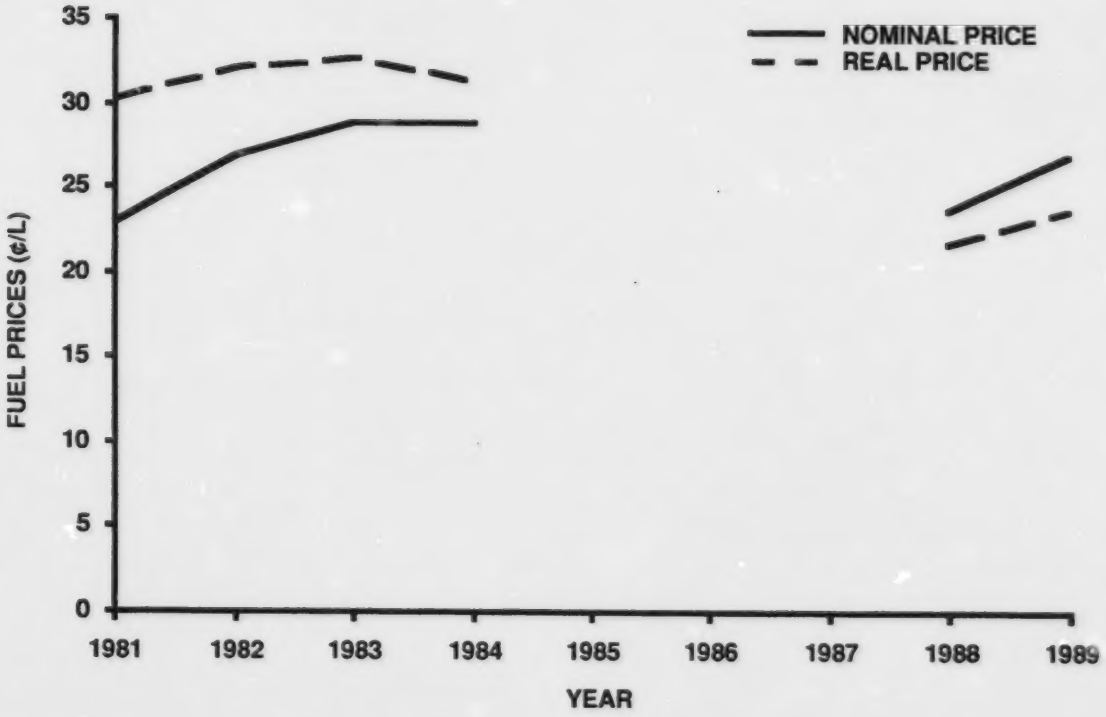
The propane prices for 1985-1987 are unavailable; therefore, it is difficult to get a clear picture regarding the overall trend in propane fuel prices. It can be noted, however, that there was a drop in propane prices between 1984 and 1988. Overall, there was a 17.5% increase in Ontario's propane fuel prices between 1981 and 1989.

**Table 1.16/ Ontario's Propane Fuel Prices, Nominal and Real, 1981-1989**

| YEAR | NOMINAL PRICE[1] (cents/litre) | PRICE INDEX (1986 = 100) | REAL PRICE (cents/litre) |
|---|---|---|---|
| 1981 | 22.9 | 75.5 | 30.3 |
| 1982 | 26.9 | 83.7 | 32.1 |
| 1983 | 28.9 | 88.5 | 32.7 |
| 1984 | 28.9 | 92.4 | 31.3 |
| 1985 | N/A | 96.0 | N/A |
| 1986 | N/A | 100.0 | N/A |
| 1987 | N/A | 104.4 | N/A |
| 1988 | 23.6 | 108.6 | 21.7 |
| 1989 | 26.9 | 114.0 | 23.6 |

**Source:** Energy Mines and Resources

[1] Prices represent year-end value and are the prices to commercial customers at distribution pumps.

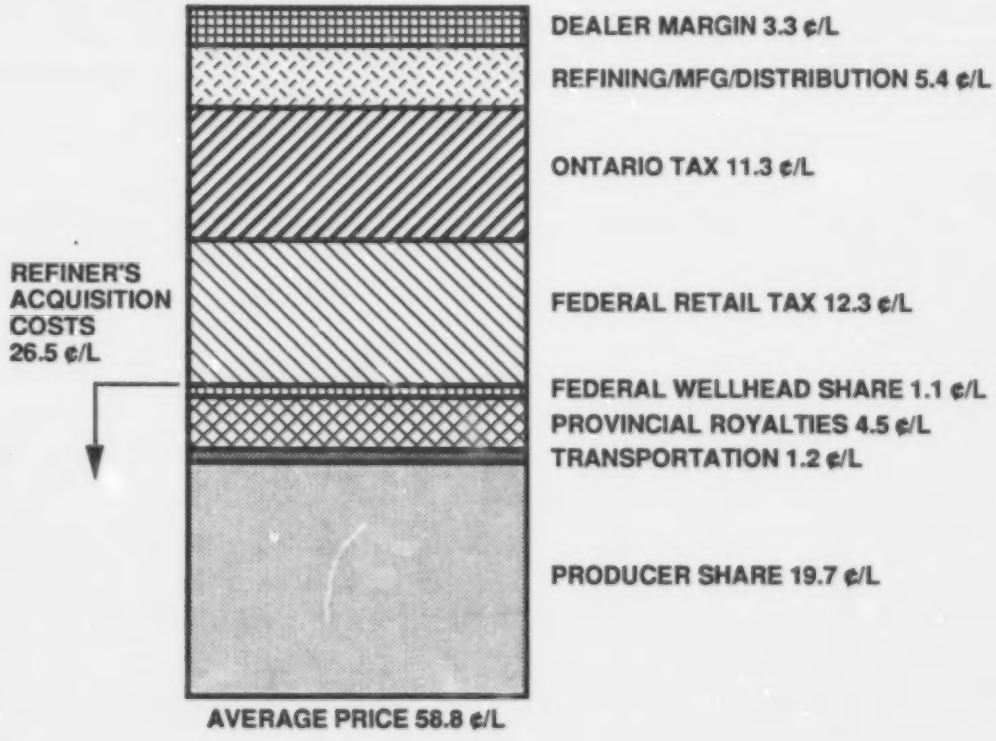



**Source:** Energy, Mines and Resources Canada

**Figure 1.16/ Ontario's Propane Fuel Prices, Nominal and Real, 1981 - 1989**

## 1.17/ Breakdown of Average Unleaded Gasoline Prices, Ontario, December 1990

Based on an average pump price of 58.8 cents per litre for regular unleaded motor gasoline in December 1990, the component costs of a litre of gasoline are indicated in Figure 1.17. Federal and provincial taxes and royalties account for 49.7% of the retail price of gasoline. This percentage is up from 43% in the summer of 1985. The increase was caused by increases in Ontario taxes and federal retail taxes. It is important to note that this cost breakdown is highly dependent upon the categorization of the components. In some sources, the Petroleum Compensation and Canadian Ownership charges are not represented as taxes because these revenues are used to balance imported oil prices with Canadian prices and to increase Canadian ownership in the petroleum sector, respectively. As well, the refiner's margin will vary by company and year, depending the on individual taxation deferment plan to the oil company.


DEALER MARGIN 3.3 ¢/L
REFINING/MFG/DISTRIBUTION 5.4 ¢/L
ONTARIO TAX 11.3 ¢/L
REFINER'S ACQUISITION COSTS 26.5 ¢/L
FEDERAL RETAIL TAX 12.3 ¢/L
FEDERAL WELLHEAD SHARE 1.1 ¢/L
PROVINCIAL ROYALTIES 4.5 ¢/L
TRANSPORTATION 1.2 ¢/L
PRODUCER SHARE 19.7 ¢/L
AVERAGE PRICE 58.8 ¢/L

**Source:** Energy, Mines and Resources Canada

**Figure 1.17/ Breakdown of Average Unleaded Gasoline Prices, Ontario, December 1990**

## 1.18/ Ontario Government Fuel Taxes, Regular Leaded, Regular Unleaded, Propane and Diesel Fuel, 1975-1991

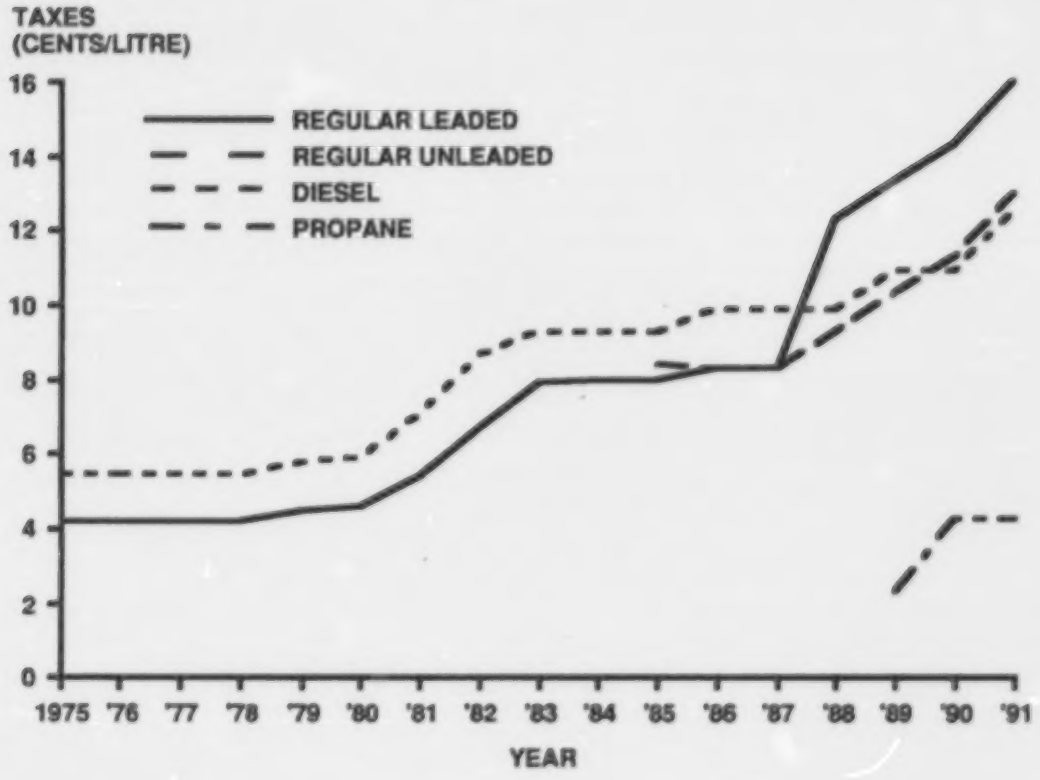
During the mid-1970s, when motor gasoline and diesel fuel prices were increasing rapidly, the Ontario government fuel taxes remained stable, in the form of a Unit Commodity Tax. When the ad valorum fuel tax rate (the fuel tax charged is proportional to the fuel price and is adjusted quarterly; 20% for motor gasoline and 27% for diesel fuel) was introduced in May 1981, fuel taxes increased at the same rate as retail fuel prices. In January 1986, the ad valorum tax was replaced by the Unit Commodity Tax. The rate of the Unit Commodity Tax can only be changed through a provincial budget. Propane taxes were introduced in July 1989, in the form of the Unit Commodity Tax.

**Table 1.18/ Ontario Government Fuel Taxes, Regular Leaded, Regular Unleaded, and Diesel Fuel, 1975-1991**

| Year | Regular Leaded | Regular Unleaded | Diesel | Propane |
|---|---|---|---|---|
| 1975 | 4.2 | | 5.5 | |
| 1976 | 4.2 | | 5.5 | |
| 1977 | 4.2 | | 5.5 | |
| 1978 | 4.2 | | 5.5 | |
| 1979 | 4.5 | | 5.8 | |
| 1980 | 4.6 | | 5.9 | |
| 1981 | 5.4 | | 7.1 | |
| 1982 | 6.7 | | 8.7 | |
| 1983 | 7.9 | | 9.3 | |
| 1984 | 8.0 | | 9.3 | |
| 1985 | 8.0 | 8.4 | 9.3 | |
| 1986 | 8.3 | 8.3 | 9.9 | |
| 1987 | 8.3 | 8.3 | 9.9 | |
| 1988 | 12.3 | 9.3 | 9.9 | |
| 1989 | 13.3 | 10.3 | 10.9 | 2.3 |
| 1990 | 14.3 | 11.3 | 10.9 | 4.3 |
| 1991* | 16.0 | 13.0 | 12.6 | 4.3 |

**Source:** Ministry of Energy and Ministry of Revenue

* Leaded is no longer available at retail outlets in Ontario.




**Source:** Ministry of Energy and Ministry of Revenue

**Figure 1.18/ Ontario Government Fuel Taxes, 1975 – 1991**

## 1.19/ Number of Registered Motor Vehicles in Relation to the Number of Gasoline Outlets, Ontario, 1975-1990

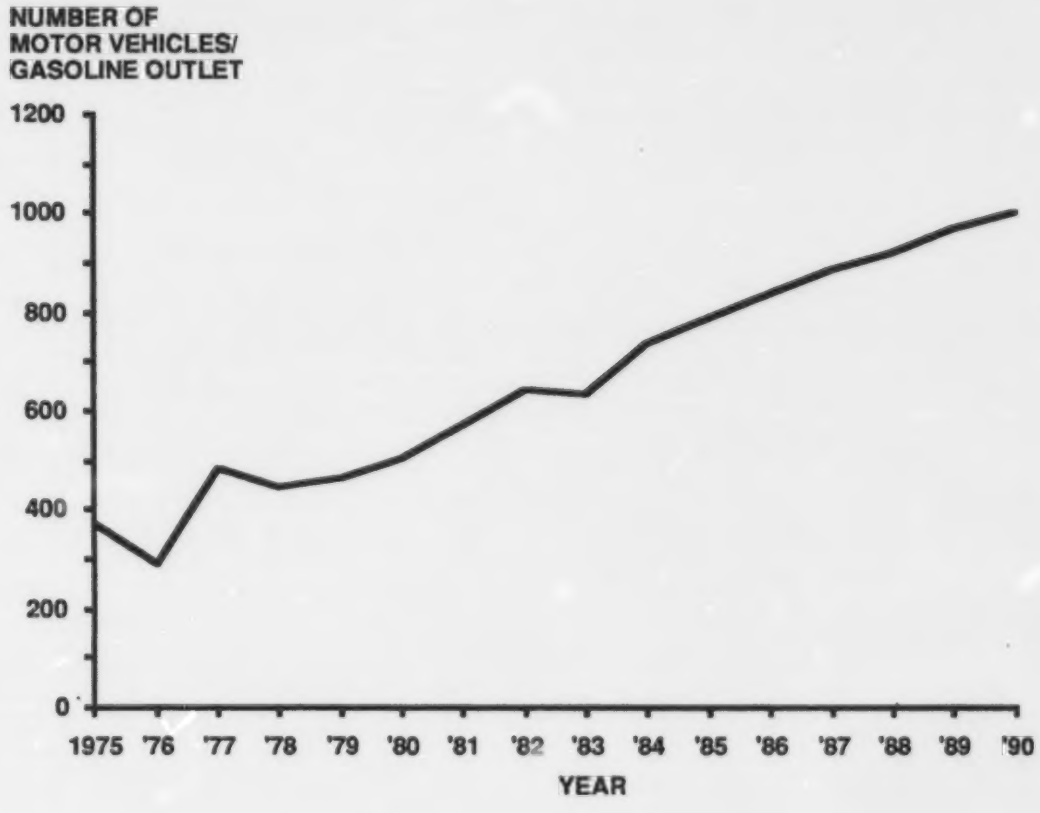
Since 1975, there has been a decline in the number of motor gasoline refuelling stations from 10 500 to 7 536, a drop of 28%.

The number of registered motor vehicles has increased by 93% since 1975. These two diverging patterns have resulted in an increase of 170% for the number of cars per refuelling station.

**Table 1.19/ Number of Registered Motor Vehicles in Relation to the Number of Gasoline Outlets, Ontario, 1975-1990**

| YEAR | NUMBER OF GASOLINE OUTLETS | MOTOR VEHICLES (thousand) | NO. OF VEHICLE PER OUTLET |
|---|---|---|---|
| 1975 | 10 500 | 3 912 | 372 |
| 1976 | 14 000 | 4 090 | 292 |
| 1977 | 9 000 | 4 340 | 482 |
| 1978 | 10 000 | 4 475 | 447 |
| 1979 | 10 000 | 4 639 | 464 |
| 1980 | 10 000 | 5 022 | 502 |
| 1981 | 8 816 | 5 051 | 573 |
| 1982 | 8 202 | 5 295 | 646 |
| 1983 | 8 083 | 5 136 | 635 |
| 1984 | 8 118 | 5 955 | 734 |
| 1985 | 7 978 | 6 299 | 790 |
| 1986 | 7 836 | 6 558 | 837 |
| 1987 | 7 771 | 6 873 | 884 |
| 1988 | 7 834 | 7 191 | 918 |
| 1989 | 7 655 | 7 416 | 969 |
| 1990 | 7 531 | 7 562 | 1 004 |

**Source:** Ministry of Transportation and Statistics Canada (53-219)




**Source:** Ministry of Transportation and Statistics Canada (53-219)

**Figure 1.19/ Number of Registered Motor Vehicles in Relation to the Number of Gasoline Outlets, Ontario, 1975 – 1990**

# SECTION TWO: HIGHWAY MODES

## 2.1/ AUTOMOBILES

### 2.1.1/ Number of Registered Passenger Vehicles, Ontario, 1975-1990

Since 1975, the number of passenger vehicles registered in Ontario has increased by 47.5%. Given this increase in the number of registered automobiles, it is not surprising that motor gasoline consumption is on the increase; however, the percentage increase in motor gasoline consumption is much less than the percentage increase in vehicle registration. An awareness of the importance of fuel consumption and the use of fuel efficient vehicles may account for this apparent discrepancy.

Beginning in 1983, all vehicle owners were required to renew their vehicle licences on or before their date of birth. This change in the licensing renewal procedure accounts for the drop in vehicle registrations which occurred in 1983.

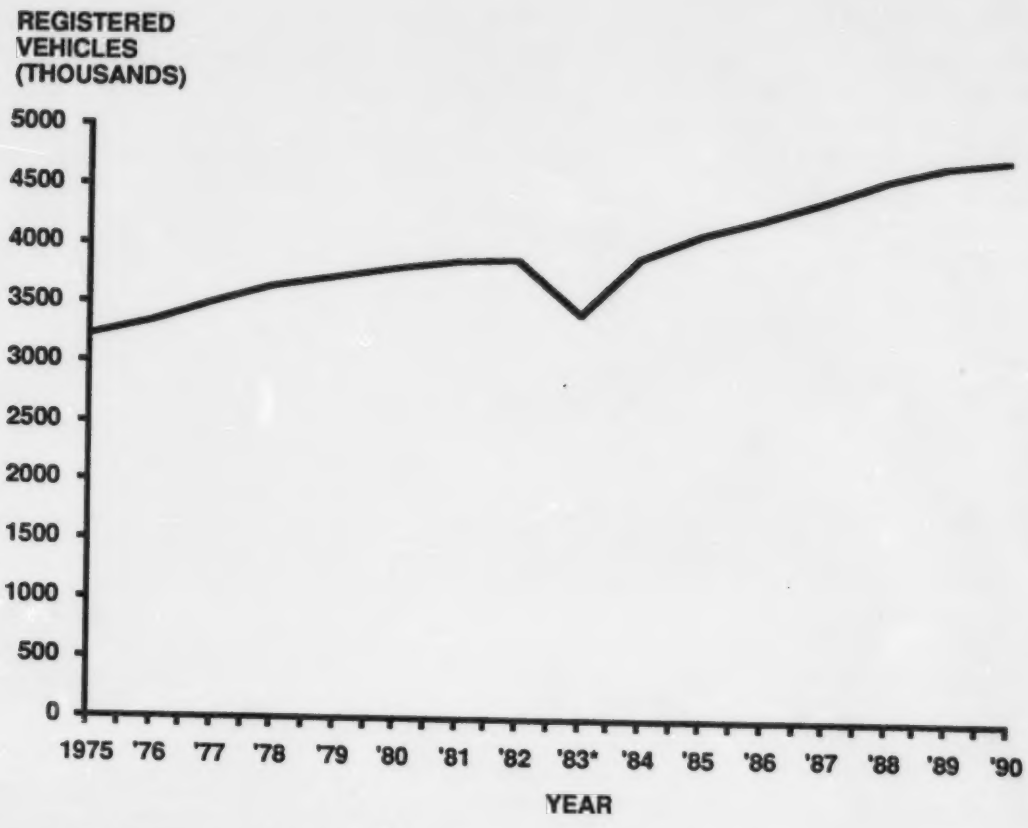
**Table 2.1.1/ Number of Registered Passenger Vehicles, Ontario, 1975-1990**

| YEAR | NUMBER OF VEHICLES (thousands) |
|---|---|
| 1975 | 3225 |
| 1976 | 3342 |
| 1977 | 3490 |
| 1978 | 3630 |
| 1979 | 3725 |
| 1980 | 3794 |
| 1981 | 3867 |
| 1982 | 3879 |
| *1983 | 3420 |
| 1984 | 3905 |
| 1985 | 4094 |
| 1986 | 4244 |
| 1987 | 4403 |
| 1988 | 4578 |
| 1989 | 4702 |
| 1990 | 4757 |

**Source:** Ministry of Transportation

* 1983 figures are low due to change in vehicle licensing procedures

NOTE: Includes any automobile or light truck not registered as a commercial vehicle.




* Note: 1983 figures are low due to a change in vehicle licensing procedures.

Note: Includes any automobile or light truck not registered as a commercial vehicle.

**Source:** Ministry of Transportation

**Figure 2.1.1/ Number of Registered Passenger Vehicles, Ontario, 1975 – 1990**

## 2.1.2/ Passenger Car Registrations by Number of Cylinders, Ontario, 1975-1990

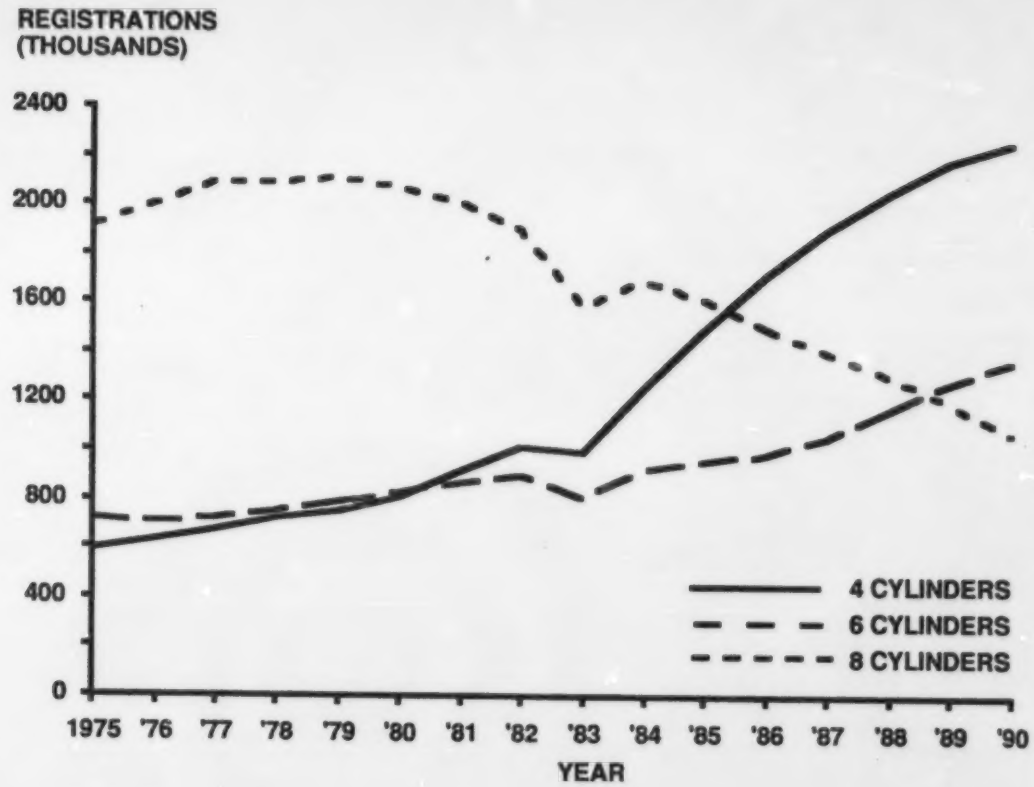
The total number of vehicle registrations, the majority of which have 4, 6, or 8 cylinders, increased by 47.5% from 1975 to 1990. Four-cylinder vehicles had the largest increase in registrations at 281%. Six-cylinder vehicle registrations have increased by a lower margin of 90%. Eight-cylinder vehicle registrations decreased by 43.9% from 1975 to 1990. Beginning in the early 1970s, people began to drive smaller and more fuel efficient cars; consequently, there are proportionally fewer eight-cylinder vehicles being sold.

**Table 2.1.2/ Passenger Car Registrations by Number of Cylinders, Ontario, 1975-1990**

| YEAR | 4 CYLINDERS (thousands) | 6 CYLINDERS (thousands) | 8 CYLINDERS* (thousands) |
|---|---|---|---|
| 1975 | 593 | 714 | 1913 |
| 1976 | 632 | 706 | 2000 |
| 1977 | 669 | 722 | 2094 |
| 1978 | 714 | 750 | 2090 |
| 1979 | 748 | 783 | 2113 |
| 1980 | 809 | 828 | 2068 |
| 1981 | 915 | 864 | 2006 |
| 1982 | 1009 | 889 | 1900 |
| **1983 | 993 | 803 | 1583 |
| 1984 | 1256 | 918 | 1689 |
| 1985 | 1486 | 954 | 1610 |
| 1986 | 1712 | 984 | 1501 |
| 1987 | 1900 | 1051 | 1398 |
| 1988 | 2053 | 1164 | 1301 |
| 1989 | 2176 | 1269 | 1192 |
| 1990 | 2260 | 1356 | 1073 |

**Source:** Ministry of Transportation

* Includes engines 6.5 L or larger.
** 1983 figures are low due to change in vehicle licensing renewal procedures.




* Note: 1983 figures are low due to a change in vehicle licensing procedures.

**Source:** Ministry of Transportation

**Figure 2.1.2/ Passenger Car Registrations by Number of Cylinders, Ontario 1975 – 1990**

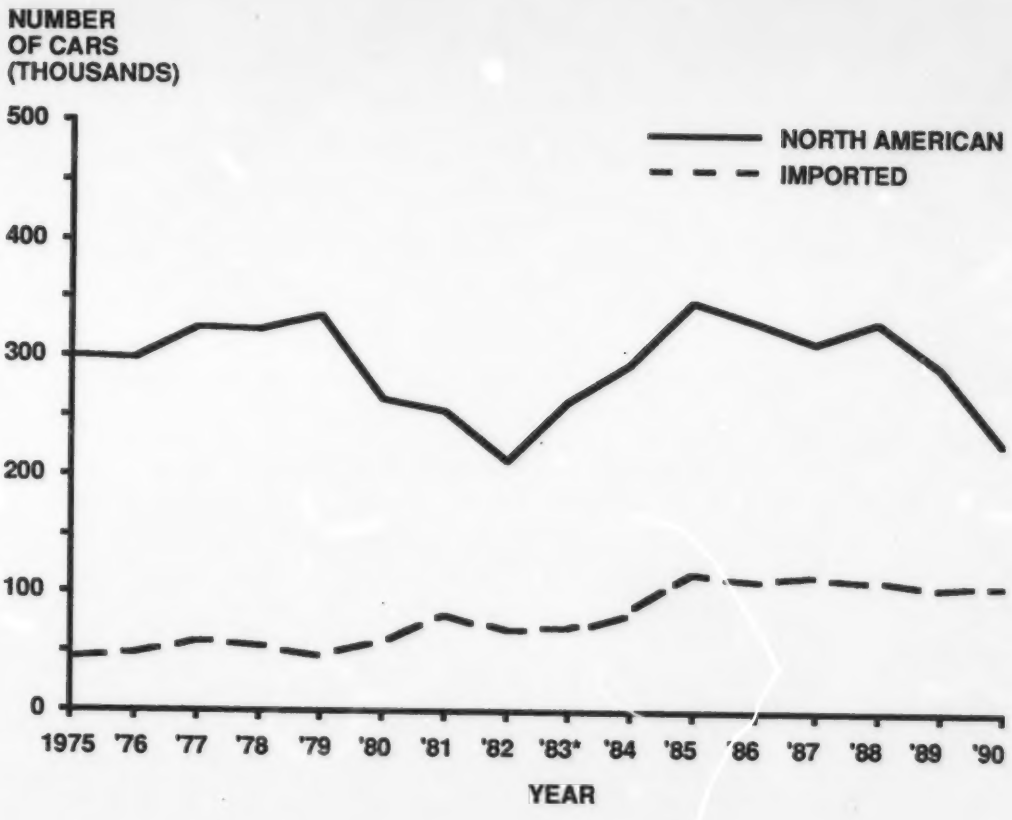
### 2.1.3/ New Car Sales, North American and Imported, Ontario, 1975-1990

The number of new car sales varied between 1975 and 1990. Between 1982 and 1985 there was a 64% increase in sales. Overall, however, from 1975 to 1990, new car sales decreased by 3%. Since 1975, North American car sales have decreased by 24%, while imported car sales have increased by 138%. Note also, we still buy more than two times as many domestic vehicles as imports.

**Table 2.1.3/ New Car Sales, North American and Imported, Ontario, 1975-1990**

| YEAR | NORTH AMERICAN (thousands) | IMPORTED (thousands) | TOTAL (thousands) |
|---|---|---|---|
| 1975 | 300 | 45 | 345 |
| 1976 | 298 | 49 | 348 |
| 1977 | 324 | 59 | 383 |
| 1978 | 323 | 54 | 377 |
| 1979 | 334 | 46 | 381 |
| 1980 | 264 | 58 | 322 |
| 1981 | 254 | 81 | 335 |
| 1982 | 212 | 69 | 281 |
| 1983 | 262 | 70 | 332 |
| 1984 | 294 | 85 | 379 |
| 1985 | 346 | 116 | 462 |
| 1986 | 331 | 110 | 441 |
| 1987 | 312 | 114 | 426 |
| 1988 | 331 | 110 | 441 |
| 1989 | 292 | 105 | 397 |
| 1990 | 227 | 107 | 334 |

**Source:** R.L. Polk & Co. Ltd.




**Source:** R.L. Polk & Co. Ltd.

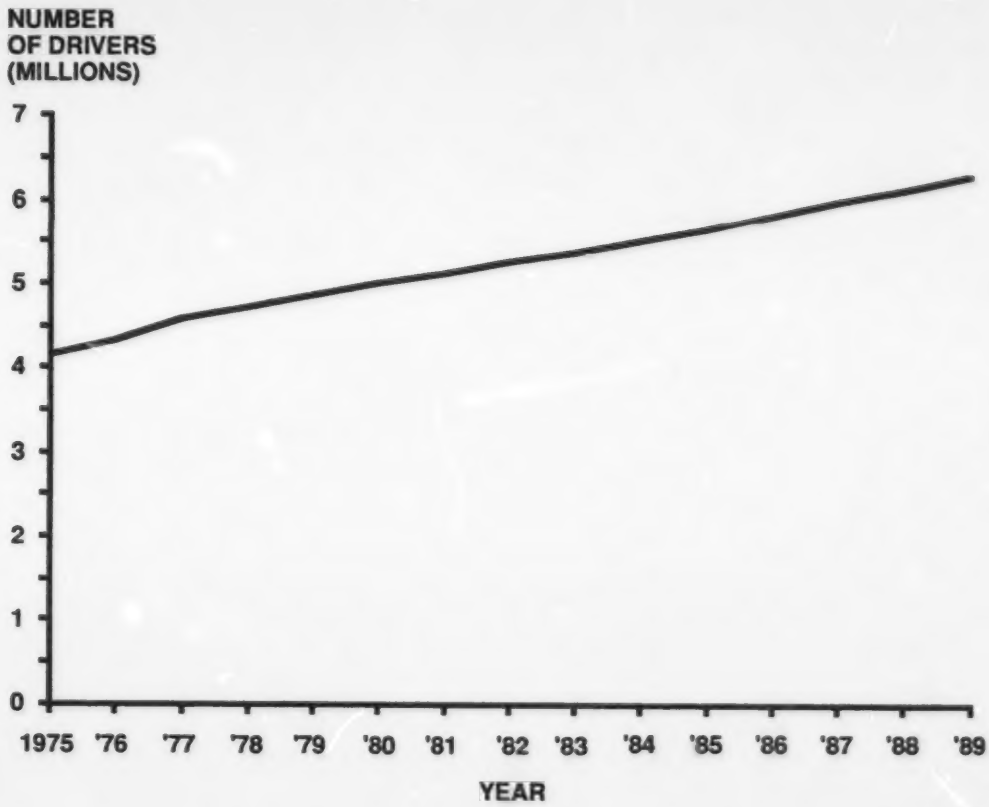
**Figure 2.1.3/ New Car Sales, North American and Imported, Ontario, 1975 – 1990**

### 2.1.4/ Total Number of Licensed Drivers, Ontario, 1975-1989

From 1975 to 1989, the total number of licensed drivers in Ontario has increased steadily from 4.2 million to 6.3 million; an increase of 50% in the total number of licensed drivers in Ontario.

| YEAR | NUMBER OF DRIVERS (thousands) |
|---|---|
| 1975 | 4161 |
| 1976 | 4316 |
| 1977 | 4563 |
| 1978 | 4726 |
| 1979 | 4859 |
| 1980 | 4994 |
| 1981 | 5123 |
| 1982 | 5247 |
| 1983 | 5380 |
| 1984 | 5514 |
| 1985 | 5660 |
| 1986 | 5818 |
| 1987 | 5978 |
| 1988 | 6118 |
| 1989 | 6290 |

**Source:** Statistics Canada (53-219) and Ministry of Transportation




**Source:** Statistics Canada (53-219) and Ministry of Transportation

**Figure 2.1.4/ Total Number of Licensed Drivers, Ontario, 1975 – 1989**

**2.1.5/ Number of Cars per Licensed Driver, Ontario, 1975-1989**

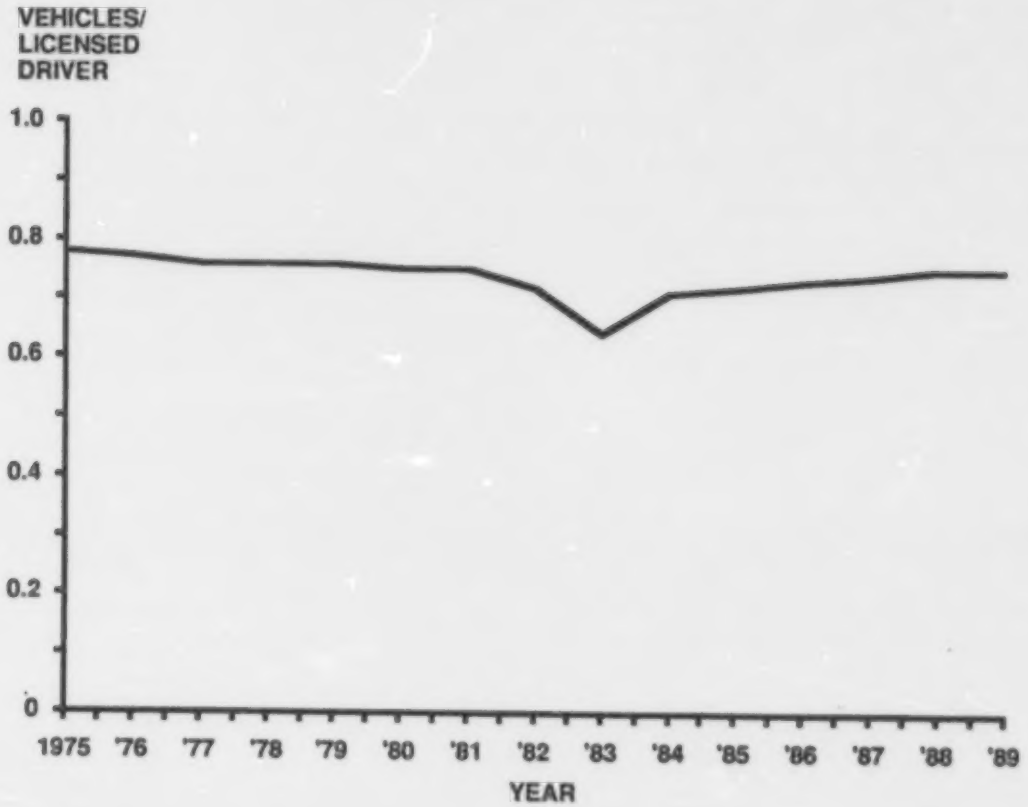
Between 1975 and 1983, the number of cars per licensed driver steadily declined. Although this decrease indicates that the annual kilometres per vehicle should increase, the annual travel per vehicle actually decreased from 1975. Therefore, more drivers were travelling less, in relatively fewer cars with more passengers. The increase in the number of cars per licensed driver from 1984 onwards may be the result of improved economic conditions; people have been buying cars again.

**Table 2.1.5/ Number of Cars per Licensed Driver, Ontario,1975-1989**

| YEAR | PASSENGER VEHICLES (thousands) | LICENSED DRIVERS (thousands) | CARS/DRIVER |
|---|---|---|---|
| 1975 | 3225 | 4161 | 0.78 |
| 1976 | 3342 | 4316 | 0.77 |
| 1977 | 3490 | 4563 | 0.76 |
| 1978 | 3597 | 4726 | 0.76 |
| 1979 | 3692 | 4859 | 0.76 |
| 1980 | 3752 | 4994 | 0.75 |
| 1981 | 3831 | 5123 | 0.75 |
| 1982 | 3843 | 5371 | 0.72 |
| 1983 | 3420* | 5380 | 0.64* |
| 1984 | 3905 | 5514 | 0.71 |
| 1985 | 4094 | 5660 | 0.72 |
| 1986 | 4244 | 5818 | 0.73 |
| 1987 | 4403 | 5978 | 0.74 |
| 1988 | 4578 | 6118 | 0.75 |
| 1989 | 4702 | 6290 | 0.75 |

**Source:** Statistics Canada (53-219) and Ministry of Transportation

* 1983 figure is low due to a change in vehicle licensing procedure.




* 1983 figure is low due to a change in the vehicle licensing procedure.

**Source:** Ministry of Transportation and Statistics Canada (53-219)

**Figure 2.1.5/ Number of Cars per Licensed Driver, Ontario, 1975 – 1989**

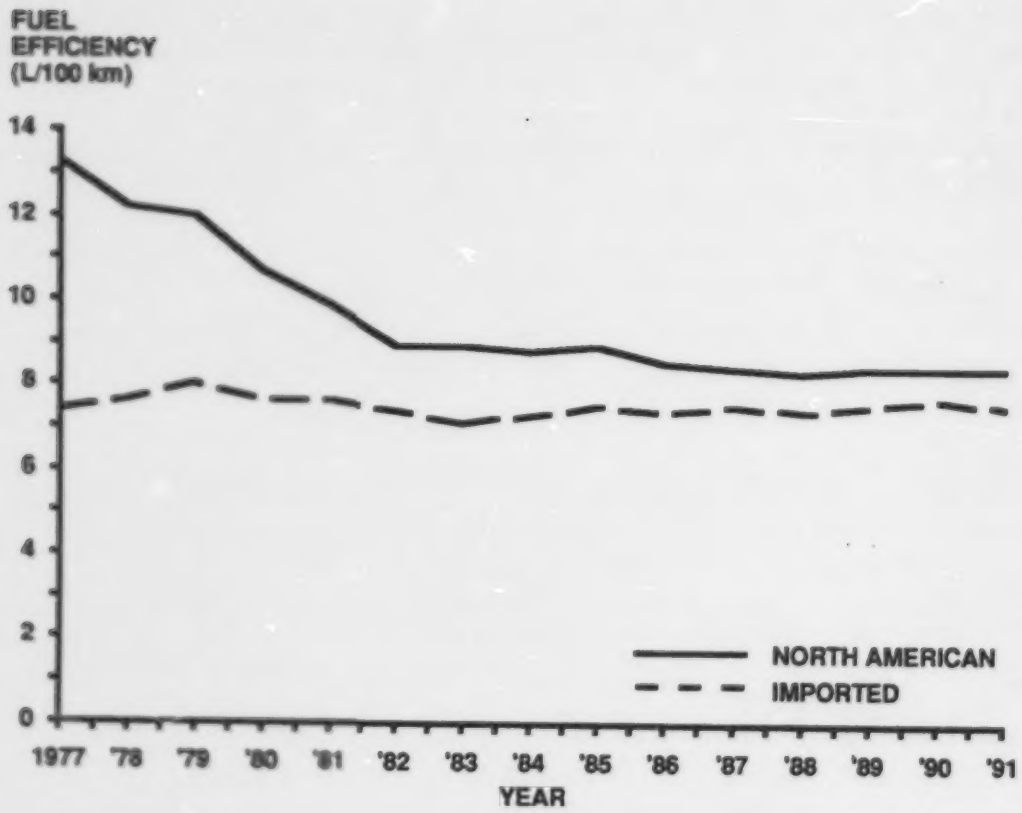
### 2.1.6/ Sales-Weighted Average Fuel Efficiency of North American and Imported Automobiles, Canada, 1977-1990

Traditionally, the fuel efficiency of imported automobiles has been better than that of domestically-produced cars. In 1977, the average fuel efficiency of the imported auto fleet was 44% better than the comparable domestic fleet. What is surprising, however, is that by 1990, (model-year of automobiles) this gap narrowed to only a 8% difference in fuel efficiency between the two fleets.

**Table 2.1.6/ Sales-Weighted Average Fuel Efficiency of North American and Imported Automobiles, Canada, 1977-1990**

| YEAR | NORTH AMERICAN (L/100 km) | IMPORTED (L/100 km) |
|---|---|---|
| 1977 | 13.3 | 7.4 |
| 1978 | 12.2 | 7.6 |
| 1979 | 12.0 | 8.0 |
| 1980 | 10.7 | 7.6 |
| 1981 | 9.9 | 7.6 |
| 1982 | 8.9 | 7.4 |
| 1983 | 8.9 | 7.1 |
| 1984 | 8.8 | 7.3 |
| 1985 | 8.9 | 7.5 |
| 1986 | 8.5 | 7.4 |
| 1987 | 8.4 | 7.5 |
| 1988 | 8.3 | 7.4 |
| 1989 | 8.4 | 7.5 |
| 1990 | 8.4 | 7.7 |

**Source:** Transport Canada




**Source:** Transport Canada

**Figure 2.1.6/ Sales-Weighted Average Fuel Efficiency of North American and Imported Automobiles, Canada, 1977 – 1990**

### 2.1.7/ Sales-Weighted Class Distribution of New Automobiles, Ontario, 1975-1983

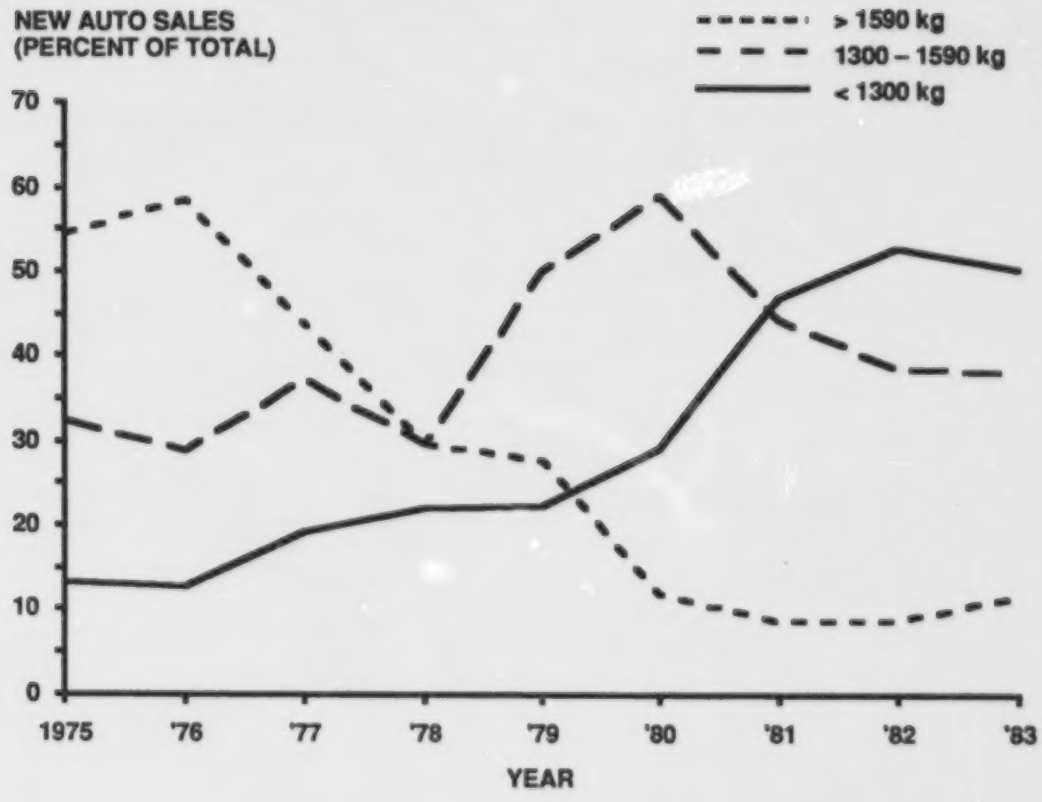
One of the most common methods used to achieve greater fuel efficiency is the reduction of the average curb weight of the fleet. Although all weight categories enjoyed increased sales in 1983, the heaviest weight category increased its percentage of total sales market share. This increase is not likely to continue, particularly with the Tax for Fuel Conservation implemented by the Ontario government in 1991.

**Table 2.1.7/ Sales-Weighted Class Distribution of New Automobiles, Ontario, 1975-1983**

NUMBER OF PASSENGER AUTOMOBILES AND PERCENTAGES (in parenthesis)

| Year | LES THAN 1300 kg | 1130-1590 kg | MORE THAN 1590 kg | TOTAL (100%) |
|---|---|---|---|---|
| 1975 | 41 857 (13.1%) | 103 920 (32.4%) | 174 510 (54.5%) | 320 287 |
| 1976 | 44 022 (12.8%) | 99 474 (28.8%) | 201 441 (58.4%) | 344 937 |
| 1977 | 62 984 (19.1%) | 122 810 (37.2%) | 144 230 (43.7%) | 330 024 |
| 1978 | 83 045 (22.1%) | 181 873 (29.5%) | 110 852 (29.5%) | 375 770 |
| 1979 | 85 272 (22.3%) | 191 192 (50.0%) | 105 920 (27.7%) | 382 384 |
| 1980 | 93 433 (29.0%) | 190 410 (59.1%) | 38 340 (11.9%) | 322 182 |
| 1981 | 149 498 (47.0%) | 141 019 (44.4%) | 27 358 ( 8.6%) | 317 875 |
| 1982 | 138 320 (52.8%) | 100 858 (38.5%) | 22 697 ( 8.7%) | 261 875 |
| 1983 | 167 332 (50.4%) | 126 590 (38.1%) | 37 908 (11.4%) | 331 830 |

**Source:** R.L. Polk & Co. Ltd and Sanford Evans Vehicle Handbook




**Source:** R.L. Polk & Co. Ltd. and Sanford Evans Vehicle Handbook

**Figure 2.1.7/ Sales-Weighted Weight Class Distribution of New Automobiles, Ontario, 1975 - 1983**

## 2.1.8/ Total Vehicle-Kilometres Travelled and Average Annual Travel per Vehicle, Ontario, 1975-1988

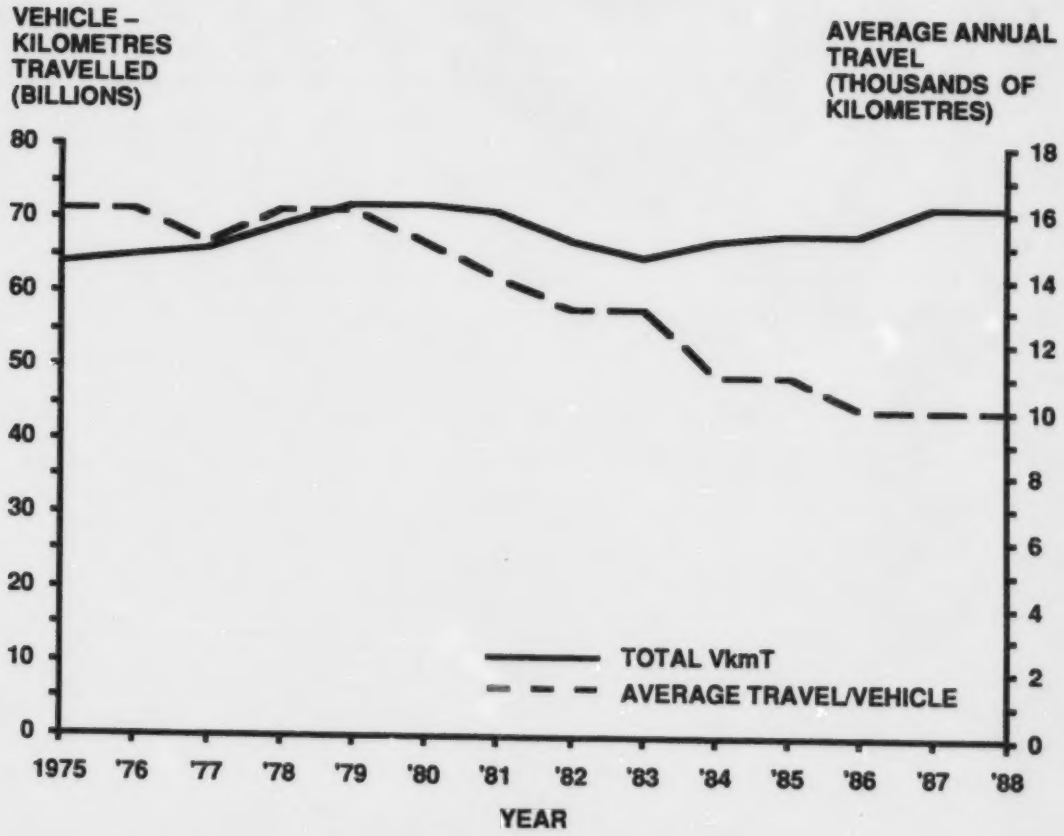
The total vehicle-kilometres travelled increased 12% between 1975 and 1988. The total number of vehicles in Ontario doubled during this same period of time, causing the average annual travel per vehicle in Ontario to decrease by 39% between 1975 and 1988.

**Table 2.1.8/ Total Vehicle-Kilometres Travelled and Average Annual Travel per Vehicle, Ontario, 1975-1988**

| YEAR | TOTAL VEHICLE-KILOMETRES TRAVELLED (millions) | TOTAL NUMBER OF VEHICLES (thousands) | AVERAGE ANNUAL TRAVEL PER VEHICLE (kilometres) |
|---|---|---|---|
| 1975 | 64 422.6 | 3 912 | 16 469 |
| 1976 | 64 947.5 | 4 090 | 15 880 |
| 1977 | 66 190.3 | 4 340 | 15 249 |
| 1978 | 69 317.0 | 4 442 | 15 604 |
| 1979 | 72 161.4 | 4 606 | 15 668 |
| 1980 | 72 491.4 | 4 980 | 14 556 |
| 1981 | 70 906.0 | 5 015 | 14 140 |
| 1982 | 67 360.7* | 5 018 | 13 425 |
| 1983 | 65 358.8 | 5 182 | 12 613 |
| 1984 | 66 722.5 | 5 955 | 11 205 |
| 1985 | 67 831.0 | 6 299 | 10 769 |
| 1986 | 68 465.0 | 6 558 | 10 440 |
| 1987 | 71 647.0 | 6 873 | 10 424 |
| 1988 | 72 345.0 | 7 191 | 10 060 |

**Source:** Ministry of Transportation

* The figures for 1982 are estimated at 5% lower than 1981.




**Note:** The figures for 1982 are estimated at 5% lower than 1981

**Source:** Ministry of Transportation

**Figure 2.1.8/ Total Vehicle-Kilometres Travelled and Annual Travel per Vehicle, Ontario, 1975 - 1988**

### 2.1.9/ Average Cost of Operating an Automobile in Canada, 1978-1990

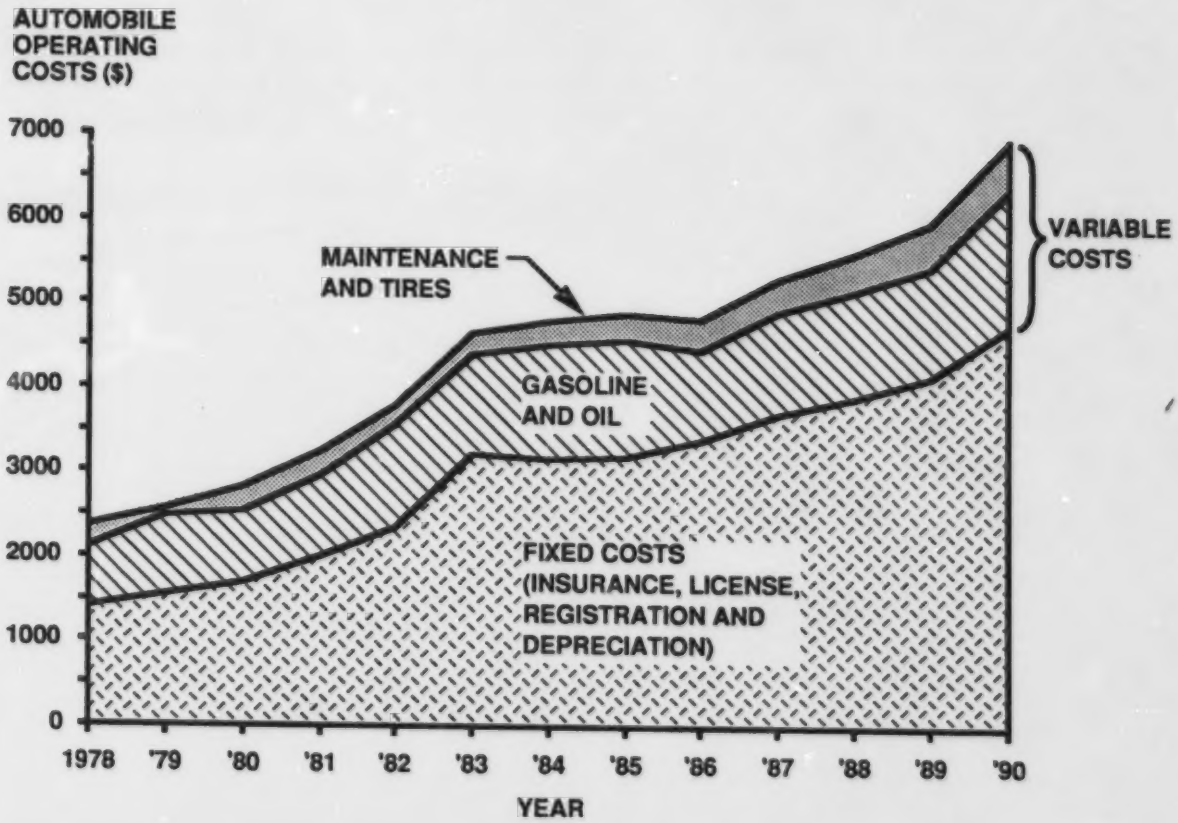
The total cost of operating an "average" automobile in Ontario has risen from $2371 in 1978, to $6924 in 1990, an increase of 192%. Fixed costs increased an overall 235% between 1975 and 1990, despite a drop in fixed costs in 1984, while variable costs increased only 129% in the same period of time.

Car costs are broken down into two categories; operating (variable) and ownership (fixed). Variable items are directly related to the geographic location, number of kilometres driven, car usage, and amount of service and report work. Fixed costs vary from car to car and place to place, but change little with the amount and type of driving. Fixed costs include insurance, license and registration fees, as well as depreciation of the vehicle.

**Table 2.1.9/ Average Cost of Operating an Automobile in Canada, 1978-1990**

| YEAR | TOTAL COST | FIXED PRICE | VARIABLE COST | GASOLINE AND OIL |
|---|---|---|---|---|
| 1978 | $2371 | $1405 | $ 965 | $ 691.50 |
| 1979 | 2571 | 1531 | 1041 | 955.50 |
| 1980 | 2810 | 1694 | 1116 | 840.00 |
| 1981 | 3221 | 1990 | 1231 | 955.50 |
| 1982 | 3783 | 2329 | 1454 | 1209.00 |
| 1983 | 4653 | 3208 | 1445 | 1183.20 |
| 1984 | 4770 | 3148 | 1622 | 1348.80 |
| 1985 | 4867 | 3190 | 1677 | 1358.40 |
| 1986 | 4819 | 3379 | 1440 | 1075.20 |
| 1987 | 5282 | 3698 | 1584 | 1185.60 |
| 1988 | 5600 | 3884 | 1716 | 1264.80 |
| 1989 | 5968 | 4132 | 1836 | 1308.00 |
| 1990 | 6924 | 4716 | 2208 | 1632.00 |

**Source:** Canadian Automobile Association




Note: The above figures are a breakdown of the national average cost figures by Runzheimer and Company. Although the test car varies from year to year, the selected car is considered to be an average size car equipped with standard accessories.

**Source:** Canadian Automobile Association

**Figure 2.1.9/ Average Cost of Operating an Automobile in Canada, 1978 – 1990**

## 2.2/ TRUCKS

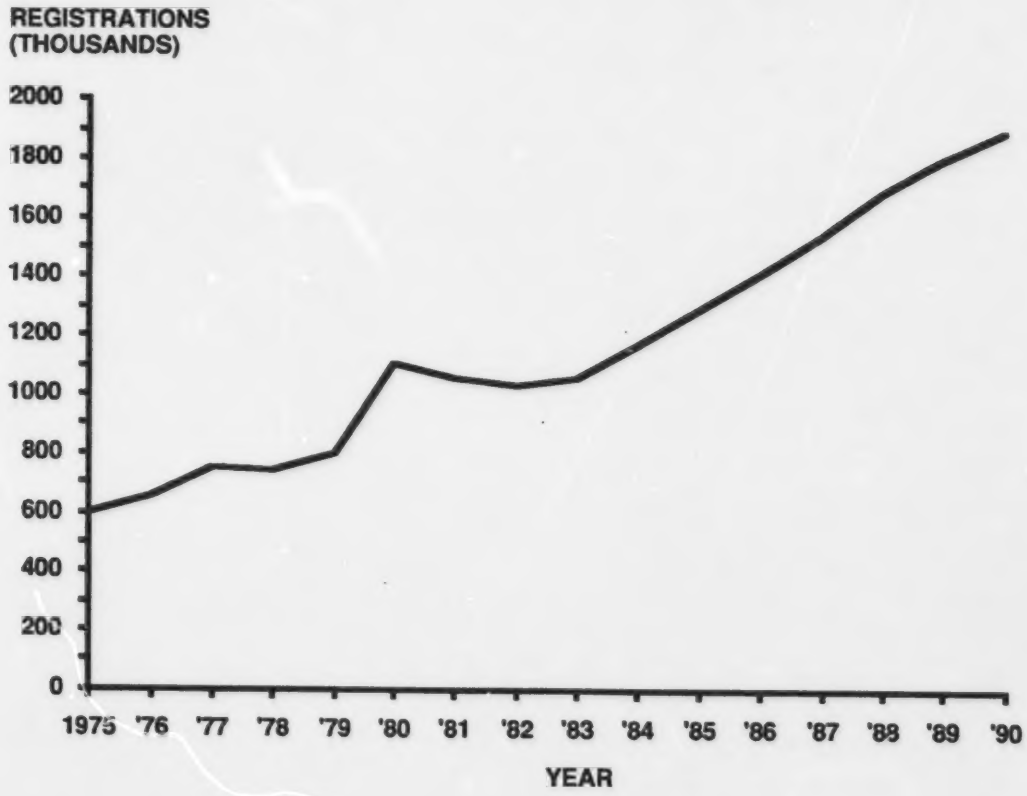
### 2.2.1/ Commercial Truck/Tractor Registrations, Ontario, 1975-1990

The total number of registered commercial trucks has increased by 217% since 1975. Economic conditions in the early 1980s resulted in a decline in the number of truck registrations. However, from 1984 to 1990, registrations increased 71%, showing an end to the low registration period.

**Table 2.2.1/ Commercial Truck/Tractor Registrations, Ontario, 1975-1990**

| YEAR | NUMBER OF REGISTRATIONS (thousands) |
|---|---|
| 1975 | 598 |
| 1976 | 651 |
| 1977 | 747 |
| 1978 | 739 |
| 1979 | 801 |
| 1980 | 1108 |
| 1981 | 1054 |
| 1982 | 1031 |
| 1983 | 1056 |
| 1984 | 1168 |
| 1985 | 1287 |
| 1986 | 1412 |
| 1987 | 1544 |
| 1988 | 1684 |
| 1989 | 1803 |
| 1990 | 1895 |

**Source:** Ministry of Transportation




**Source:** Ministry of Transportation

**Figure 2.2.1/ Commercial Truck/Tractor Registrations, Ontario, 1975 – 1990**

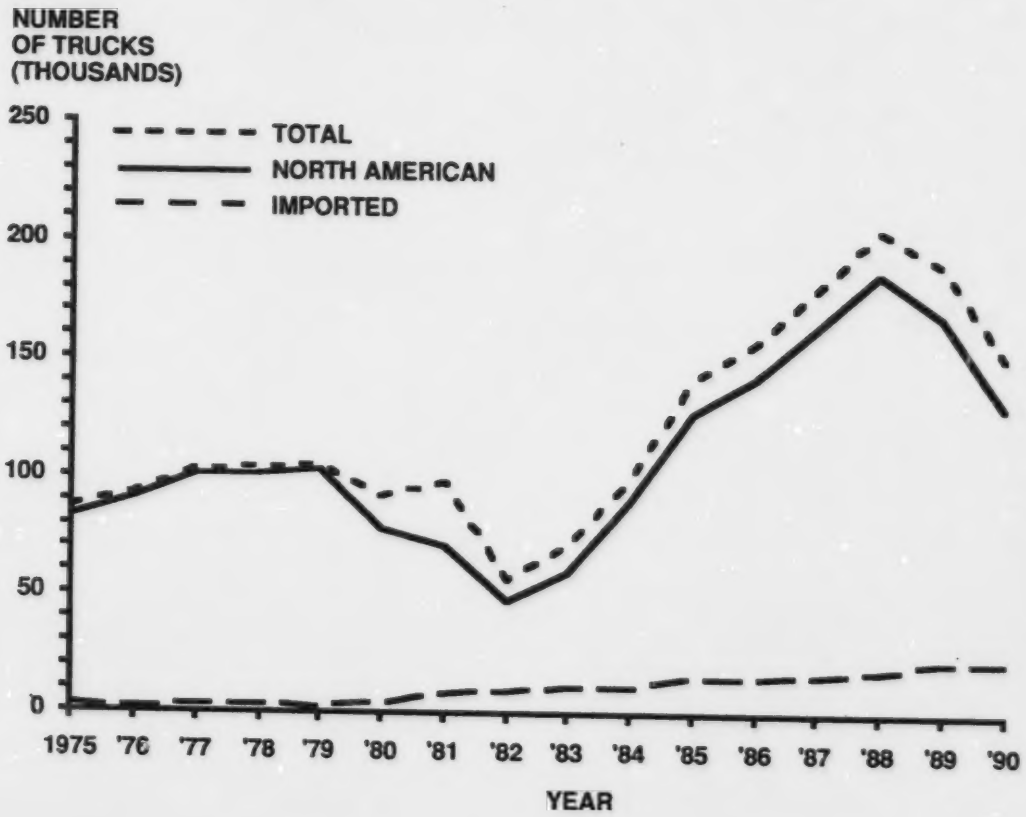
### 2.2.2/ New Truck Sales, North American and Imported, Ontario, 1975-1990

From 1975 to 1979, total new truck sales increased 21%. However, sales dropped 53% between 1979 and 1982. The large increase in sales between 1982 and 1988 of 266% can perhaps be attributed to improvements in the economy. The drop in new truck sales between 1988 and 1990 was 35%. Overall, however, new truck sales in Ontario have increased 75% between 1975 and 1990.

**Table 2.2.2/ New Truck Sales, North American and Imported, Ontario, 1975-1990**

| YEAR | NORTH AMERICAN | IMPORTED | TOTAL |
|---|---|---|---|
| 1975 | 83 472 | 3 064 | 86 536 |
| 1976 | 90 647 | 2 462 | 93 109 |
| 1977 | 100 516 | 2 842 | 103 358 |
| 1978 | 101 383 | 2 785 | 104 168 |
| 1979 | 102 669 | 2 433 | 105 102 |
| 1980 | 78 271 | 4 207 | 92 478 |
| 1981 | 69 948 | 8 422 | 98 370 |
| 1982 | 46 998 | 8 866 | 55 864 |
| 1983 | 58 908 | 11 240 | 70 148 |
| 1984 | 89 594 | 10 789 | 100 383 |
| 1985 | 126 754 | 14 557 | 141 311 |
| 1986 | 141 989 | 14 947 | 156 936 |
| 1987 | 163 358 | 16 446 | 179 804 |
| 1988 | 186 826 | 17 707 | 204 533 |
| 1989 | 168 412 | 22 186 | 190 598 |
| 1990 | 129 500 | 21 913 | 151 413 |

**Source:** R.L. Polk & Co. Ltd.




**Source:** R.L. Polk & Co, Ltd.

**Figure 2.2.2/ New Truck Sales, North American and Imported, Ontario 1975 – 1990**

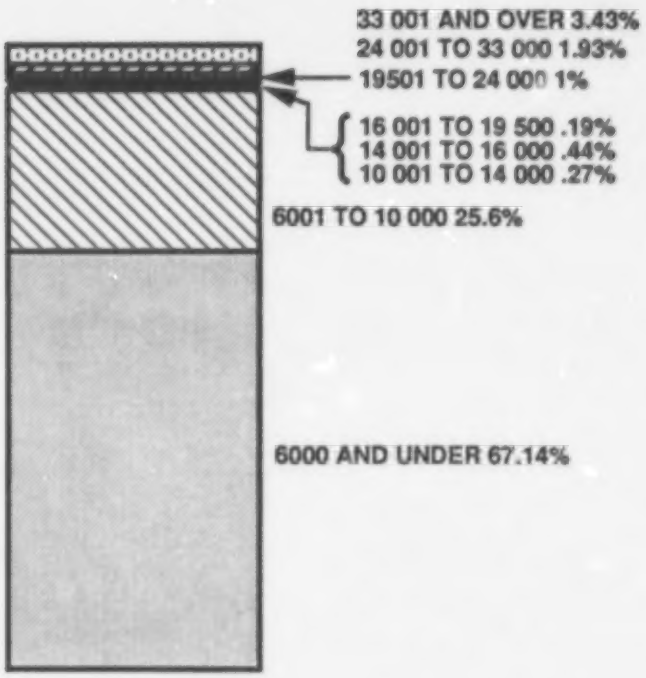
### 2.2.3/ Weight Class Distribution of New Truck Sales, Ontario, 1990

Total truck sales increased 34% from 1984 to 1990. Trucks in the lightest weight categories comprised the largest percentage of sales, with 93% of the new trucks weighing 10 000 kg or less.

**Table 2.2.3/ Weight Class Distribution of New Truck Sales, Ontario, 1990**

| Weight Category | Number of Sales | Percentage of Market |
|---|---|---|
| 6000 kg or less | 101 677 | 67.14 |
| 6 000 – 10 000 | 38 767 | 25.60 |
| 10 001 – 14 000 | 411 | 00.27 |
| 14 001 – 16 000 | 672 | 00.44 |
| 16 001 – 19 500 | 294 | 00.19 |
| 19 501 – 24 000 | 1 512 | 01.00 |
| 24 001 – 33 000 | 2 915 | 01.93 |
| 33001 and over | 5 195 | 03.43 |
| TOTAL | 151 443 | 100.00 |

**Source:** R.L. Polk & Co. Ltd.




**Source:** R.L. Polk & Co. Ltd.

**Figure 2.2.3/ Weight Class Distribution of New Truck Sales, Ontario, 1990**

## 2.2.4/ Fuel Consumption of Ontario's For-Hire Truck Fleet, Ontario, 1975-1988

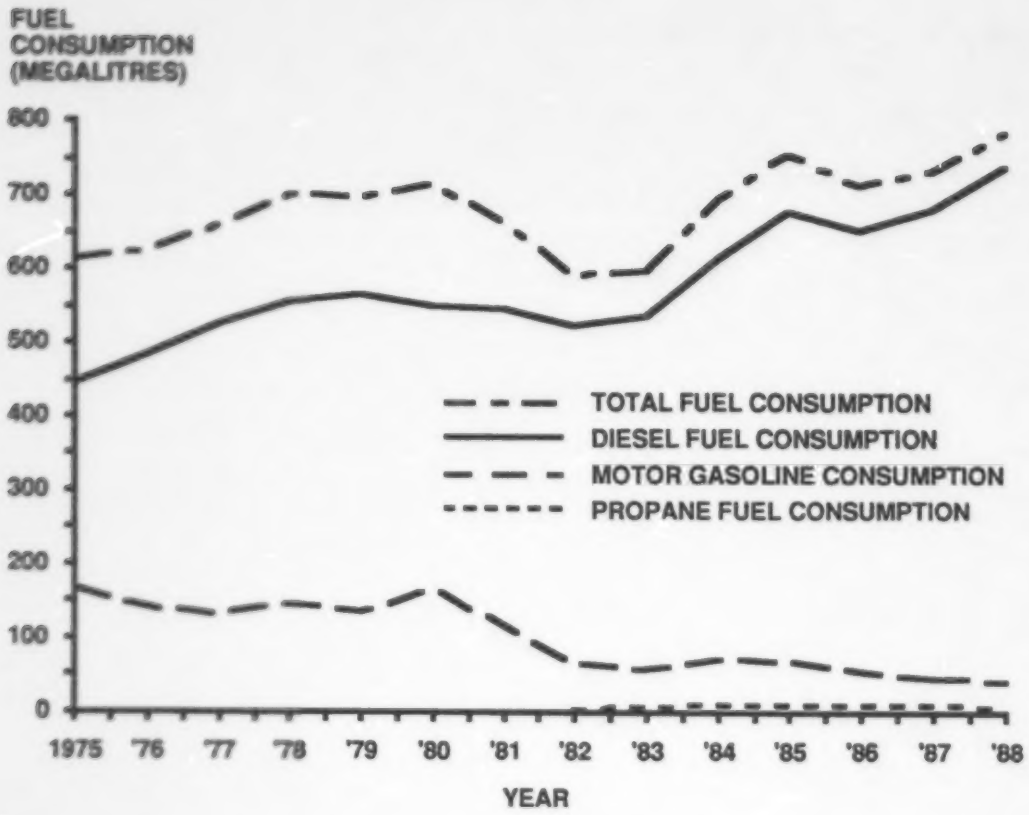
Ontario's for-hire truck fleet, which reflects the fuel consumption trends of the entire transportation sector, increased its fuel consumption between 1975 and 1980. However, 1981 marked the beginning of a dramatic decrease in the total fuel consumption. This decrease may be attributed to poor economic conditions, as fuel consumption for the trucking sector follows the economic climate very closely. Gasoline consumption has been decreasing steadily since 1982. The drop in gasoline consumption may be the result of truck drivers switching to other forms of transportation fuels, (such as diesel and propane), in order to reduce operation costs. Fuel consumption for Ontario's for-hire trucks reached its highest level in 1988, at 786.1 megalitres. Overall, there was a 28% increase in total fuel consumption from 1975 to 1988.

**TABLE 2.2.4/ Fuel Consumption of Ontario's For-Hire Truck Fleet, Ontario, 1975-1988**

| YEAR | DIESEL FUEL (megalitres) | | MOTOR GASOLINE (megalitres) | | PROPANE (megalitres) | | TOTAL (100%) (megalitres) |
|---|---|---|---|---|---|---|---|
| 1975 | 445.3 | (72.6) | 168.4 | (27.4) | – | | 613.7 |
| 1976 | 483.6 | (77.3) | 142.3 | (22.7) | – | | 625.9 |
| 1977 | 527.1 | (79.9) | 132.7 | (20.1) | – | | 659.9 |
| 1978 | 556.3 | (79.3) | 145.5 | (20.7) | – | | 701.7 |
| 1979 | 563.6 | (80.7) | 134.4 | (19.3) | – | | 698.0 |
| 1980 | 549.8 | (77.0) | 164.5 | (23.0) | – | | 714.3 |
| 1981 | 546.0 | (82.6) | 114.8 | (17.4) | – | | 660.7 |
| 1982 | 523.8 | (88.6) | 65.3 | (11.0) | 2.5 | (0.4) | 591.6 |
| 1983 | 534.8 | (89.6) | 56.8 | ( 9.6) | 4.7 | (0.8) | 596.3 |
| 1984 | 613.0 | (88.5) | 69.6 | (10.0) | 10.4 | (1.5) | 693.0 |
| 1985 | 676.6 | (89.6) | 68.0 | ( 9.0) | 10.4 | (1.4) | 755.0 |
| 1986 | 651.6 | (91.2) | 53.9 | ( 7.6) | 8.8 | (1.2) | 714.3 |
| 1987 | 680.6 | (92.7) | 45.5 | ( 6.2) | 8.3 | (1.1) | 734.4 |
| 1988 | 739.0 | (94.0) | 40.3 | ( 5.1) | 6.8 | (0.9) | 786.1 |

**Source:** Statistics Canada (53-222)

Note: Figures in parentheses show the percentage of total market.




**Source:** Statistics Canada (53-222)

**Figure 2.2.4/ Fuel Consumption of Ontario's For-Hire Truck Fleet, Ontario, 1975 – 1988**

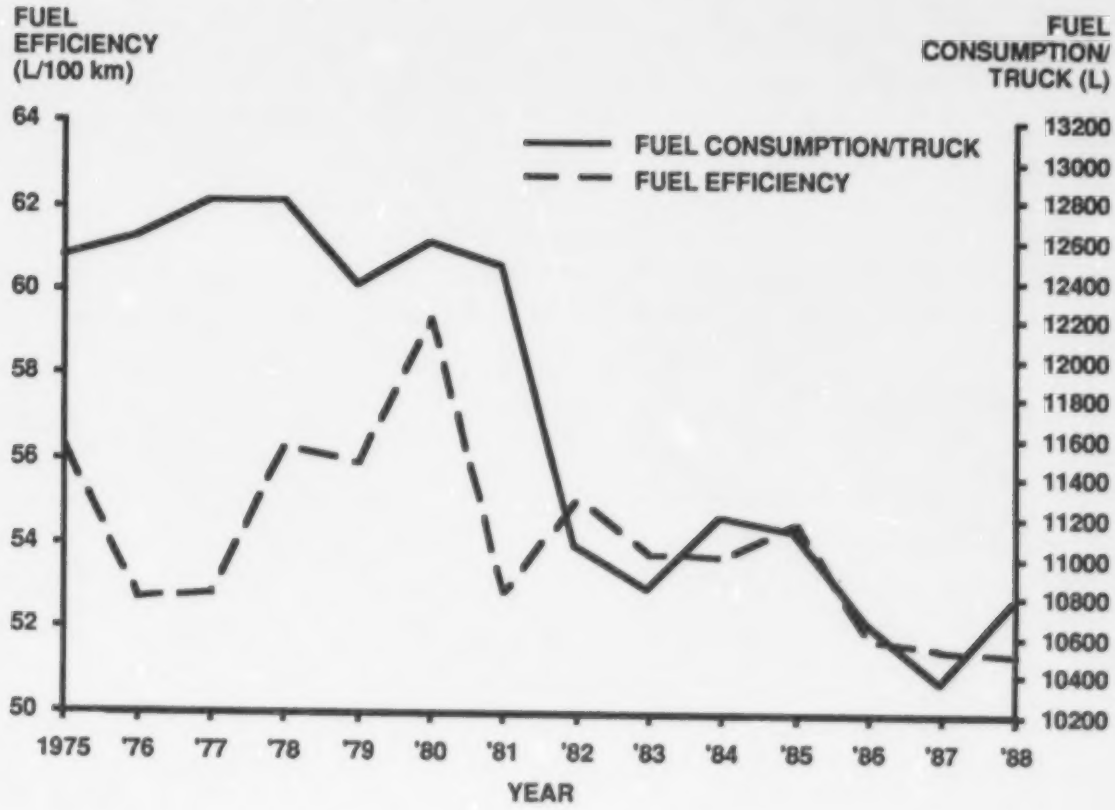
### 2.2.5/ Average Annual Fuel Consumption and Fuel Efficiency per Truck, Ontario's For-Hire Truck Fleet, 1975-1988

The overall fuel efficiency of Ontario's For-Hire Truck Fleet has improved 9.5% since 1975. This figure should improve in the coming years as fleet owners begin replacing older vehicles with newer, more fuel-efficient models.

**Table 2.2.5/ Average Annual Fuel Consumption and Fuel Efficiency per Truck, Ontario's For-Hire Truck Fleet, 1975-1988**

| YEAR | DISTANCE TRAVELLED (millions of vehicle–km) | NUMBER OF VEHICLES | FUEL CONSUMPTION PER TRUCK (litres) | FUEL EFFICIENCY (litres/100 km) |
|---|---|---|---|---|
| 1975 | 1 090.9 | 49 051 | 12 511.9 | 56.3 |
| 1976 | 1 188.3 | 49 673 | 12 609.5 | 52.7 |
| 1977 | 1 250.2 | 51 556 | 12 798.7 | 52.8 |
| 1978 | 1 247.0 | 54 860 | 12 791.6 | 56.3 |
| 1979 | 1 248.7 | 56 436 | 12 367.4 | 55.9 |
| 1980 | 1 205.2 | 56 737 | 12 589.6 | 59.3 |
| 1981 | 1 248.2 | 52 999 | 12 466.9 | 52.9 |
| 1982 | 1 073.2 | 53 471 | 11 063.9 | 55.1 |
| 1983 | 1 108.4 | 54 944 | 10 852.8 | 53.8 |
| 1984 | 1 290.4 | 61 821 | 11 209.6 | 53.7 |
| 1985 | 1 384.3 | 67 801 | 11 134.3 | 54.5 |
| 1986 | 1 380.1 | 66 888 | 10 679.0 | 51.8 |
| 1987 | 1 425.2 | 70 758 | 10 380.1 | 51.5 |
| 1988 | 1 529.8 | 72 852 | 10 790.0 | 51.4 |

**Source:** Statistics Canada (53-222)




**Source:** Statistics Canada (53-222)

**Figure 2.2.5/ Average Annual Fuel Consumption and Fuel Efficiency per Truck: Ontario's For-Hire Truck Fleet, 1975 – 1988**

### 2.2.6/ Linehaul Costs in Cents per Kilometre, Ontario, 1990 (on a 5-axle semi-trailer unit, dry-load, 160 000 km/year)

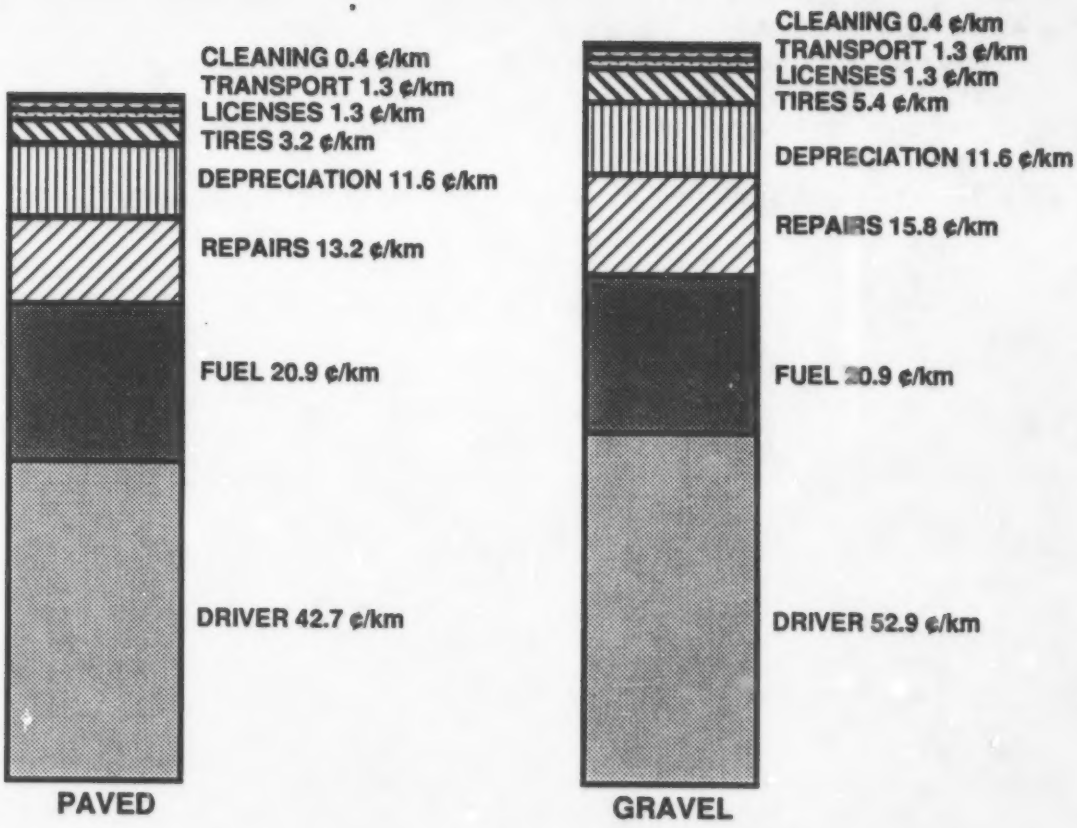
The nature of truck service causes operating costs to vary significantly in relation to particular characteristics associated with each activity. Vehicle configuration, commodity characteristics, hauling distance, degree of utilization, regional area of operation, right-of-way conditions, as well as the driver's expertise and attitude, will affect operating costs.

Operating costs have been related to these factors to produce representative information for a wide spectrum of motor carrier activities.

**Table 2.2.6/ Linehaul Costs in Cents per Kilometre, Ontario, 1990 (on a 5-axle semi-trailer unit, dry-load, 160 000 km/year)**

| FACTOR COSTS | LINEHAUL COSTS (paved road) | LINEHAUL COSTS (gravel road) |
|---|---|---|
| **Variable** | | |
| Driver | 42.7 | 52.9 |
| Fuel | 20.9 | 20.9 |
| Repairs | 13.2 | 15.8 |
| Cleaning | 0.4 | 0.4 |
| Transport | 1.3 | 1.3 |
| Tires | 3.2 | 5.4 |
| **Total Variable** | **81.7** | **103.0** |
| **Fixed** | | |
| Depreciation | 11.6 | 11.6 |
| Licenses | 1.3 | 1.3 |
| **Total Fixed** | **12.9** | **12.9** |
| **Total** | **94.6** | **115.9** |

**Source:** Transport Canada "Operating Costs of Trucks in Canada 1990"




**Source:** Transport Canada

**Figure 2.2.6/ Linehaul Costs in Cents per Kilometre, Ontario, 1990 (on a 5-Axle semi-trailer unit, dry load, 160 000 km/year)**

## 2.3/ URBAN TRANSIT

### 2.3.1/ Urban Transit: Number of Vehicles Owned and/or Leased, Ontario, 1977-1988

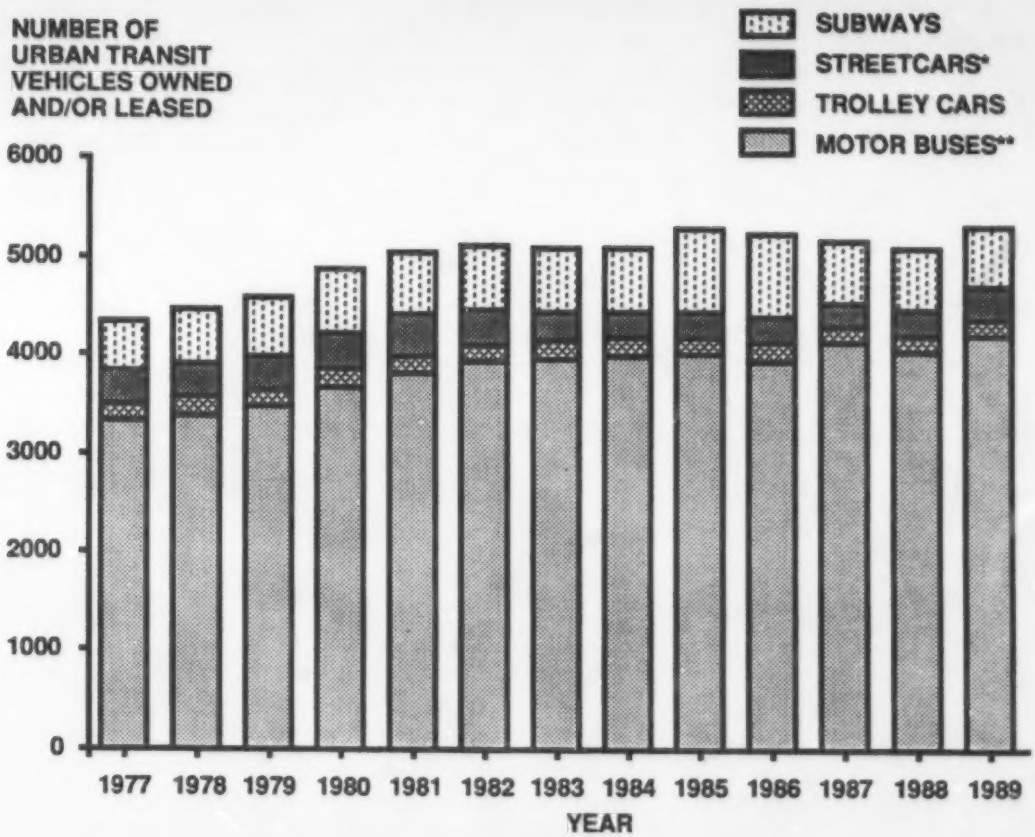
At 78%, motorized buses account for the largest portion of urban transit vehicles in Ontario. Since 1977, this mode of transportation has consistently maintained its market share. At 12%, subway cars, all of which are located in Metropolitan Toronto, constitute the second largest segment of total urban transit vehicles in Ontario. The total number of urban transit vehicles has increased 5% since 1984, and 22% overall since 1977.

**Table 2.3.1/ Urban Transit: Number of Vehicles Owned and/or Leased, Ontario, 1977-1988**

| YEAR | MOTOR BUS* | TROLLEY | STREET CARS** | SUBWAY | INTERMEDIATE CAPACITY TRANSIT SYSTEM | TOTAL 100% |
|---|---|---|---|---|---|---|
| 1977 | 3347 (75.4%) | 200 (4.5%) | 356 (8.0%) | 543 (12.1%) | – | 4437 |
| 1978 | 3409 (74.8%) | 211 (4.6%) | 349 (7.7%) | 590 (12.9%) | – | 4559 |
| 1979 | 3489 (74.6%) | 211 (4.5%) | 361 (7.7%) | 618 (13.2%) | – | 4679 |
| 1980 | 3693 (74.4%) | 207 (4.1%) | 401 (8.1%) | 666 (13.4%) | – | 4967 |
| 1981 | 3827 (74.4%) | 207 (4.0%) | 441 (8.6%) | 668 (13.0%) | – | 5143 |
| 1982 | 3948 (76.3%) | 206 (4.0%) | 371 (7.1%) | 678 (13.0%) | – | 5203 |
| 1983 | 3987 (77.0%) | 206 (4.0%) | 307 (6.0%) | 676 (13.1%) | – | 5176 |
| 1984 | 4003 (77.4%) | 206 (4.0%) | 290 (5.6%) | 676 (13.1%) | 24 (0.4%) | 5175 |
| 1985 | 3872 (76.7%) | 206 (4.1%) | 319 (6.3%) | 630 (12.5%) | 28 (0.6%) | 5051 |
| 1986 | 3883 (76.6%) | 206 (4.1%) | 319 (6.3%) | 630 (12.4%) | 28 (0.5%) | 5066 |
| 1987 | 4141 (78.2%) | 189 (3.6%) | 282 (5.3%) | 655 (12.4%) | 28 (0.5%) | 5295 |
| 1988 | 4059 (77.8%) | 195 (3.7%) | 290 (5.6%) | 645 (12.4%) | 28 (0.5%) | 5217 |
| 1989 | 4214 (77.7%) | 206 (3.8%) | 348 (6.4%) | 629 (11.6%) | | 5425 |

**Source:** Canadian Urban Transit Association (1977-1984)
Ministry of Transportation (1985-1989)

* includes articulated motor buses
** includes articulated street cars




Note: * Street cars includes articulated street cars
** Motor buses includes articulated buses

**Source:** Canadian Urban Transit Association, (1977 - 1984)
Ministry of Transportation, (1985 - 1989)

**Figure 2.3.1/ Urban Transit: Number of Vehicles Owned and/or Leased, Ontario, 1977 – 1989**

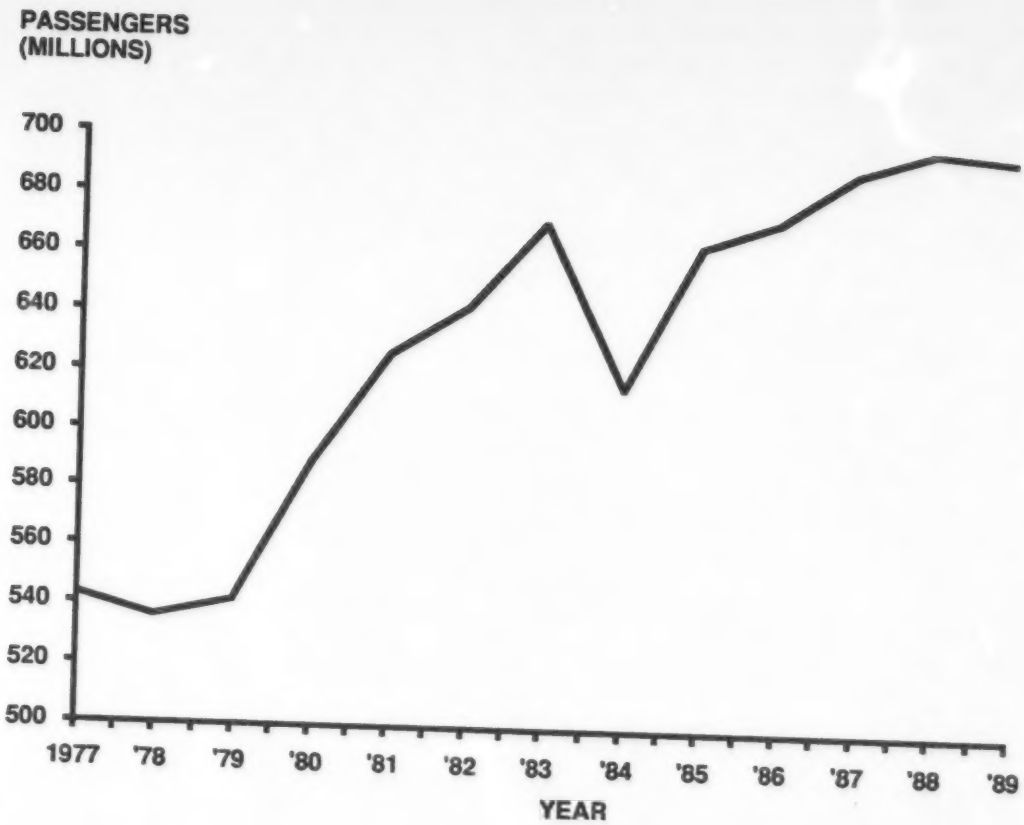
## 2.3.2/ Urban Transit: Number of Passengers, Ontario, 1977-1989

Urban transit use has grown by 152.2 million riders, a 28% increase, since 1977. This increase reflects the public's growing awareness of the necessity of fuel conservation and the feasibility of urban transit as an alternative to driving their own automobiles. Ridership peaked in 1983 in response to bad economic times, but dropped substantially in 1984 as the economy improved. Ridership reached its highest level in 1988.

**Table 2.3.2/ Urban Transit: Number of Passengers, Ontario, 1977-1989**

| YEAR | NUMBER OF PASSENGERS (millions) |
|---|---|
| 1977 | 543.2 |
| 1978 | 536.4 |
| 1979 | 542.0 |
| 1980 | 588.9 |
| 1981 | 625.8 |
| 1982 | 642.0 |
| 1983 | 671.0 |
| 1984 | 616.0 |
| 1985 | 664.3 |
| 1986 | 673.1 |
| 1987 | 689.9 |
| 1988 | 697.5 |
| 1989 | 695.4 |

**Source:** Canadian Urban Transit Association (1977-84) and Ministry of Transportation (1984-1989)




**Source:** Canadian Urban Transit Association, (1977 - 1984)
MTO Transit Office, (1984 - 1989)

**Figure 2.3.2/ Urban Transit: Number of Passengers, Ontario, 1977 – 1989**

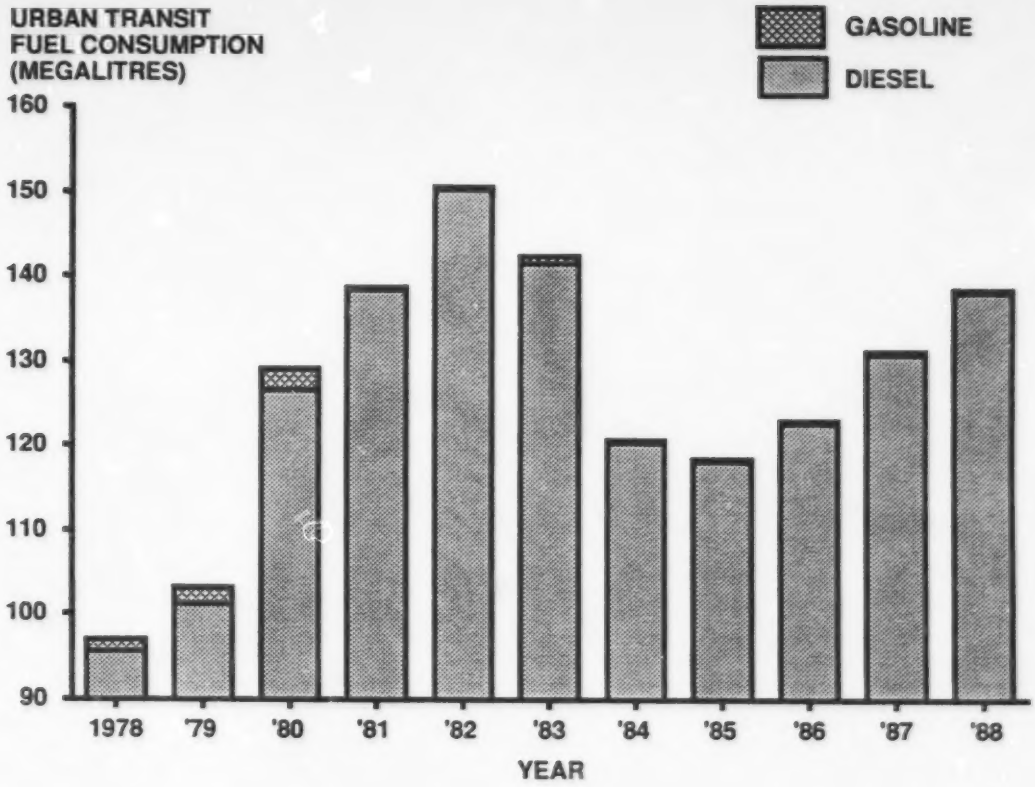
### 2.3.3/ Urban Transit: Diesel Fuel Consumption, Ontario 1978-1988

Nearly all (99.8%) of the petroleum products consumed by urban transit is in the form of diesel fuel. The number of litres of motor gasoline consumed has declined 81% since 1978, although individual yearly figures have risen and fallen from year to year. Overall, fuel consumption has increased from 97.0 million litres in 1978 to 138.47 million litres in 1988; an increase of 43%. This escalation in fuel consumption is a result of expanded urban transit service.

**Table 2.3.3/ Urban Transit: Gasoline and Diesel Fuel Consumption, Ontario 1978-1988**

| YEAR | DIESEL FUEL (megalitres) | MOTOR GASOLINE (megalitres) |
|---|---|---|
| 1978 | 95.53 | 1.55 |
| 1979 | 101.29 | 2.02 |
| 1980 | 126.60 | 2.46 |
| 1981 | 138.31 | 0.29 |
| 1982 | 150.34 | 0.27 |
| 1983 | 141.44 | 1.02 |
| 1984 | 120.24 | 0.36 |
| 1985 | 118.00 | 0.41 |
| 1986 | 122.50 | 0.29 |
| 1987 | 130.81 | 0.34 |
| 1988 | 138.17 | 0.30 |

**Source:** Canadian Urban Transit Association




**Source:** Canadian Urban Transit Association

**Figure 2.3.3/ Urban Transit: Gasoline and Diesel Fuel Consumption, Ontario, 1978 – 1988**

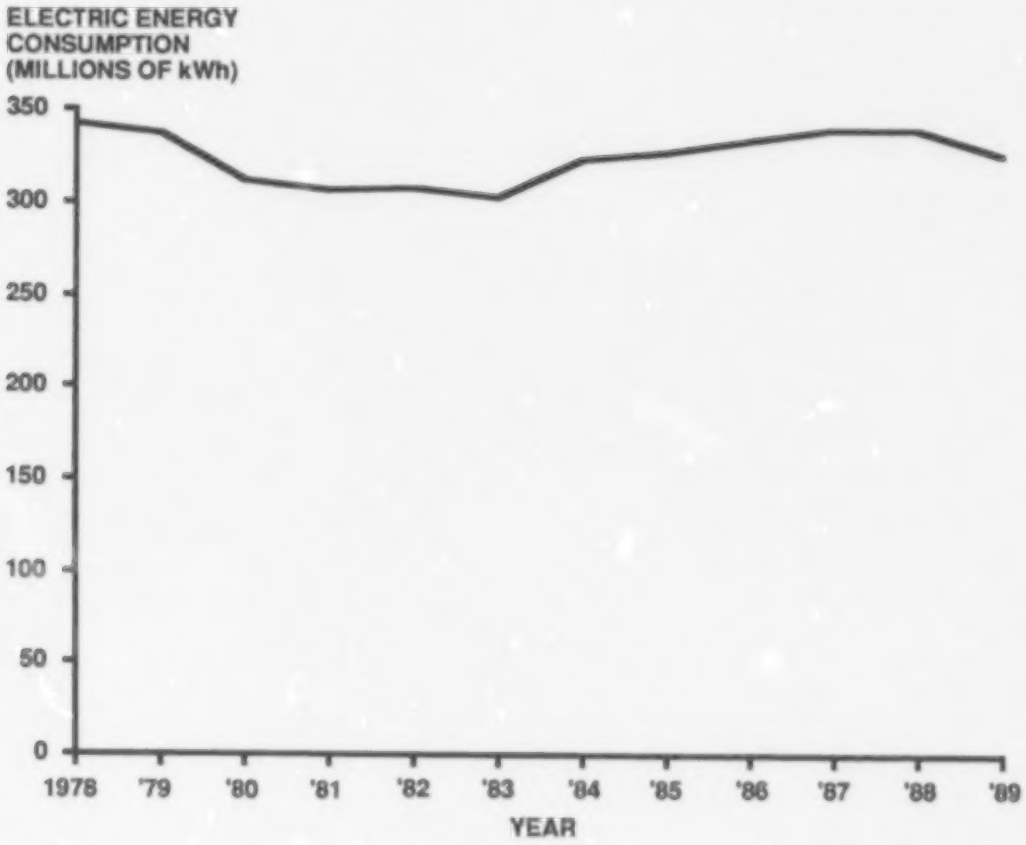
### 2.3.4/ Urban Transit: Electric Power Consumption, Ontario, 1978-1988

Electric power consumption for Ontario's urban transit vehicles, such as trolley cars and subway cars, declined from 1978 to 1988 by 0.96%. An increase in 1984 could have been due to increased usage of these modes of urban transit.

**Table 2.3.4/ Urban Transit: Electric Power Consumption, Ontario, 1978-1988**

| YEAR | ELECTRIC ENERGY (in millions and kWh) |
|---|---|
| 1978 | 342.6 |
| 1979 | 336.8 |
| 1980 | 311.5 |
| 1981 | 306.3 |
| 1982 | 307.7 |
| 1983 | 302.0 |
| 1984 | 322.6 |
| 1985 | 326.4 |
| 1986 | 333.7 |
| 1987 | 340.1 |
| 1988 | 339.3 |
| 1989 | 326.2 |

**Source:** Canadian Urban Transit Association, Statistics Canada (53-003) (1978-1984) and Ministry of Transportation (1985-1989)




**Source:** Canadian Urban Transit Association and Statistics Canada (53-003), 1978-84
Ministry of Transportation, 1985-89

**Figure 2.3.4/ Urban Transit: Electric Energy Consumption, Ontario, 1978 – 1989**

## 2.3.5/ Urban Transit: Total Vehicle-Kilometres Travelled, Ontario, 1977-1989

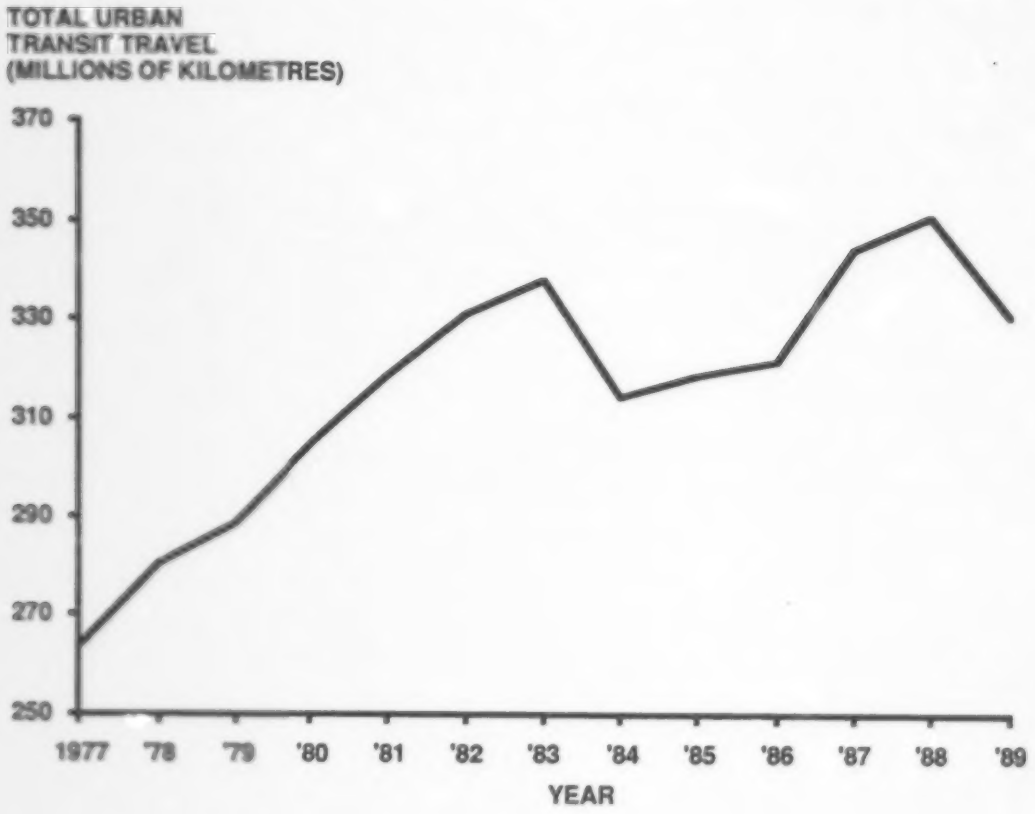
The total vehicle-kilometres travelled by urban transit vehicles has increased from 263.5 million kilometres in 1977 to 330.5 kilometres in 1989, an increase of 25%. The highest number of vehicle-kilometres travelled was reached in 1987 with 350.9 million kilometres travelled. The total vehicle-kilometres travelled increase reflects the fuel consumption increases over the same period of time.

**Table 2.3.5/ Urban Transit: Total Vehicle-Kilometres Travelled, Ontario, 1977-1989**

| YEAR | MOTOR BUS* (million) | TROLLEY COACH (million) | STREET-CAR** (million) | SUBWAY (million) | INTERMEDIATE CAPACITY TRANSIT SYSTEM (million) | COMMUTER RAIL (million) | TOTAL (million) |
|---|---|---|---|---|---|---|---|
| 1977 | 184.0 | 9.7 | 15.3 | 54.4 | – | – | 263.5 |
| 1978 | 193.9 | 9.7 | 15.0 | 61.4 | – | – | 280.1 |
| 1979 | 203.0 | 9.8 | 14.7 | 60.8 | – | – | 288.3 |
| 1980 | 217.3 | 9.8 | 15.2 | 62.1 | – | 0.1 | 304.4 |
| 1981 | 223.8 | 9.7 | 15.0 | 68.5 | – | 1.5 | 318.5 |
| 1982 | 235.6 | 8.8 | 15.1 | 69.6 | – | 2.0 | 331.1 |
| 1983 | 242.8 | 9.4 | 14.8 | 69.7 | – | 1.3 | 338.0 |
| 1984 | 219.9 | 8.5 | 14.8 | 69.6 | – | 1.3 | 314.1 |
| 1985 | 223.0 | 8.1 | 14.7 | 69.8 | 1.4 | 1.7 | 318.7 |
| 1986 | 223.5 | 8.0 | 14.5 | 71.0 | 2.6 | 1.7 | 321.3 |
| 1987 | 243.8 | 8.8 | 14.2 | 72.9 | 2.8 | 1.7 | 344.2 |
| 1988 | 251.8 | 8.2 | 13.9 | 72.2 | 2.9 | 1.9 | 350.9 |
| 1989 | 232.3 | 7.2 | 13.9 | 72.2 | 3.0 | 1.9 | 330.5 |

**Source:** Canadian Urban Transit Association, Statistics Canada (53-003) (1977-1984) and Ministry of Transportation (1985-1989)

* includes articulated motor buses
** includes articulated streetcars




**Source:** Canadian Urban Transit Association and Statistics Canada (53-003), 1977-84
Ministry of Transportation, 1985-89

**Figure 2.3.5/ Urban Transit: Total Vehicle-Kilometres Travelled, Ontario, 1977 – 1989**

## 2.4/ MOTORCYCLES AND MOPEDS

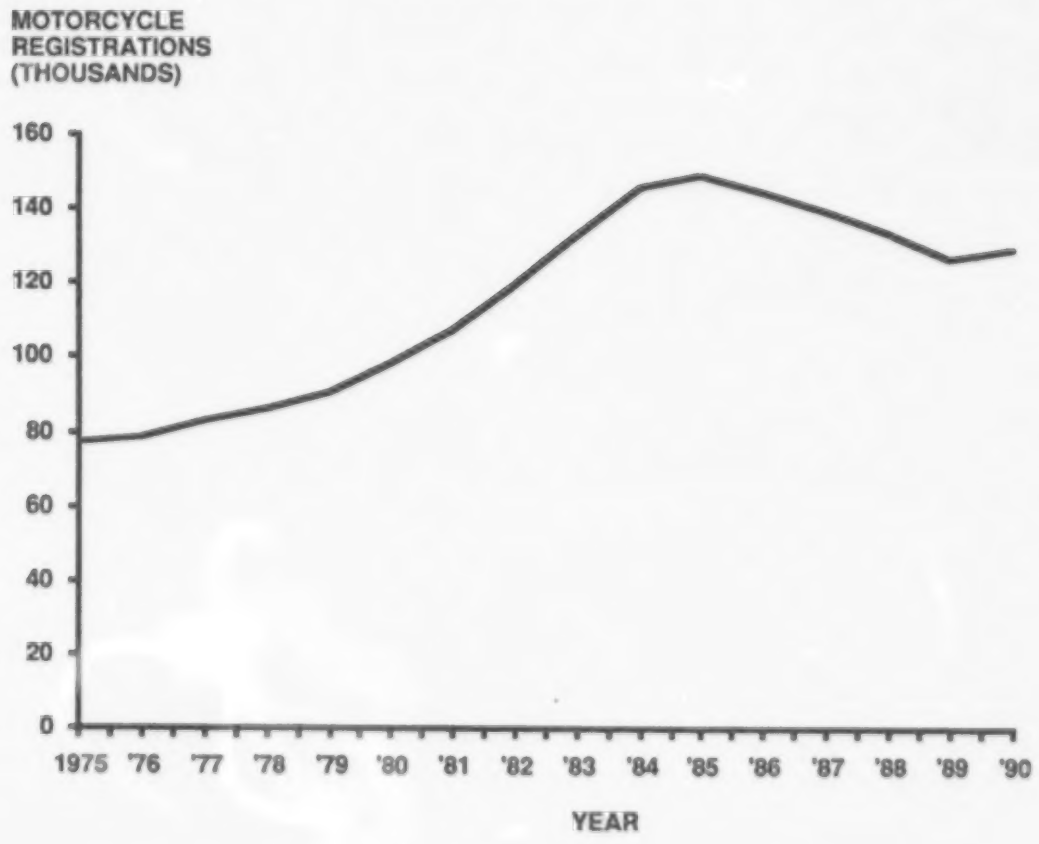
### 2.4.1/ Motorcycle Registrations, Ontario, 1975-1990

Motorcycle registrations have increased by a greater proportion than automobile registrations since 1975. Between 1975 and 1990, total motorcycle registrations increased by 67%. Motorcycles are used seasonally, and primarily for recreational purposes; therefore, the influence of motorcycle use upon total provincial fuel consumption remains minimal.

**Table 2.4.1/ Motorcycle Registrations, Ontario, 1975-1990**

| YEAR | NUMBER OF MOTORCYCLES (thousands) |
|---|---|
| 1975 | 77.3 |
| 1976 | 78.3 |
| 1977 | 82.9 |
| 1978 | 86.4 |
| 1979 | 90.9 |
| 1980 | 98.5 |
| 1981 | 107.2 |
| 1982 | 119.6 |
| 1983 | 133.3 |
| 1984 | 146.2 |
| 1985 | 149.4 |
| 1986 | 144.6 |
| 1987 | 139.3 |
| 1988 | 133.6 |
| 1989 | 126.4 |
| 1990 | 129.4 |

**Source:** Statistics Canada (53-219) and Ministry of Transportation




**Source:** Statistics Canada (53-219) and Ministry of Transportation

**Figure 2.4.1/ Motorcycle Registrations, Ontario, 1975 – 1990**

## 2.4.2/ Moped Registrations, Ontario, 1976-1990

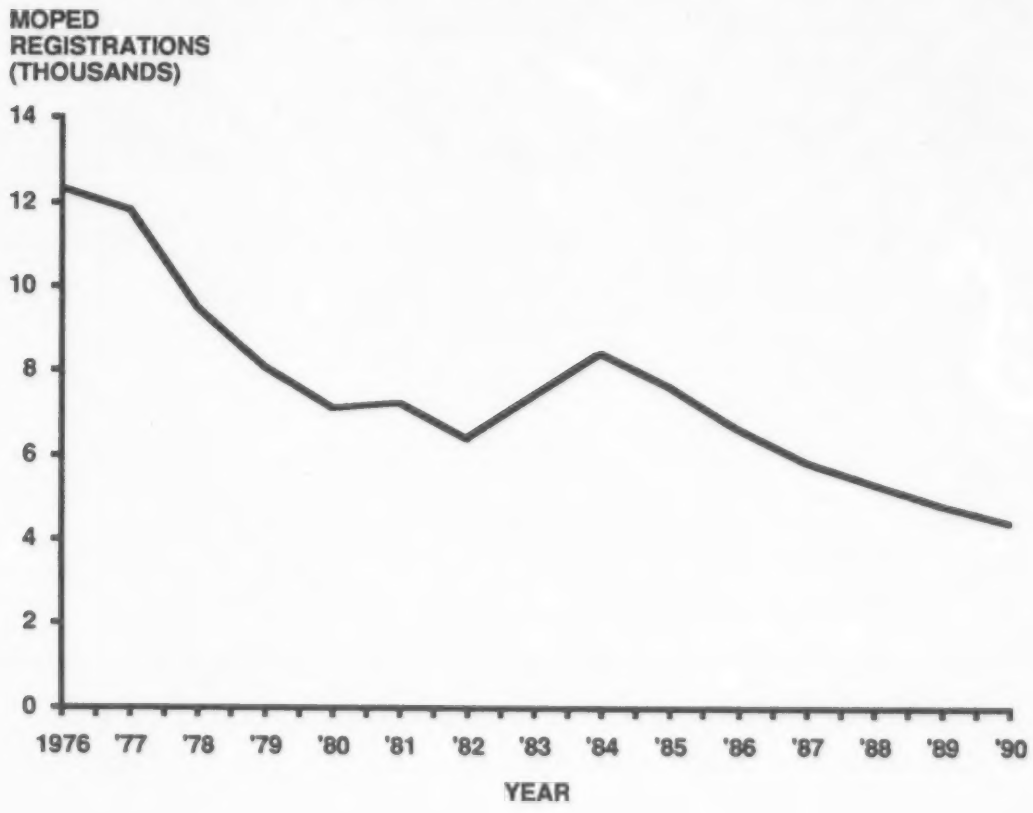
The number of moped registrations has declined by 64% since 1976. This decrease can be attributed to the fad-like nature of moped popularity and the lack of availability of mopeds today. The moped has no significant impact on transportation fuel consumption because of the comparatively low number of registrations.

**Table 2.4.2/ Moped Registrations, Ontario, 1976-1990**

| YEAR | NUMBER OF MOPED REGISTRATIONS (thousands) |
|---|---|
| 1976 | 12.3 |
| 1977 | 11.8 |
| 1978 | 9.5 |
| 1979 | 8.1 |
| 1980 | 7.1 |
| 1981 | 7.2 |
| 1982 | 6.4 |
| 1983* | 7.4 |
| 1984 | 8.4 |
| 1985 | 7.6 |
| 1986 | 6.6 |
| 1987 | 5.8 |
| 1988 | 5.3 |
| 1989 | 4.8 |
| 1990 | 4.4 |

**Source:** Statistics Canada (53-219) and Ministry of Transportation

* estimate




**Source:** Statistics Canada (53-219) and Ministry of Transportation

**Figure 2.4.2/ Moped Registrations, Ontario, 1976 – 1990**

## APPENDIX A/ CONSUMER PRICE INDEX, ONTARIO, 1971-1990

| YEAR | COMSUMER PRICE INDEX |
|---|---|
| 1975 | 44.2 |
| 1976 | 47.5 |
| 1977 | 51.3 |
| 1978 | 55.9 |
| 1979 | 61.0 |
| 1980 | 67.2 |
| 1981 | 75.5 |
| 1982 | 83.7 |
| 1983 | 88.5 |
| 1984 | 92.4 |
| 1985 | 96.0 |
| 1986 | 100.0 |
| 1987 | 104.4 |
| 1988 | 108.6 |
| 1989 | 114.0 |
| 1990 | 118.1 |

**Source:** Statistics Canada

## APPENDIX B/ METRIC CONVERSION TABLE

| | | |
|---|---|---|
| 1 mile | = | 1.609 km |
| 1 kilometre | = | 0.621 miles |
| 1 barrel | = | 158.987 litres |
| | = | 34.972 gallons (Imperial) |
| | = | 6.12 gigajoules |
| | = | 9702.0 cubic inches |
| 1 gallon (Imperial) | = | 4.546 litres |
| | = | 1.20 gallons (U.S.) |
| 1 gallon (U.S.) | = | 3.78 litres |
| | = | 0.83 gallons (Imperial) |
| 1 litre | = | 0.22 gallons (Imperial) |
| | = | 0.264 gallons (U.S.) |
| 1 megalitre | = | $1.0 \times 10^6$ litres |
| | | $1.0 \times 10^3$ cubic metres |
| 1 gigajoule | = | $1.0 \times 10^9$ joules |
| 1 terajoule | = | $1.0 \times 10^{12}$ joules |
| 1 petajoule | = | $1.0 \times 10^{15}$ joules |

ENERGY CONTENT OF FUELS

| | | |
|---|---|---|
| 1 gigajoule | = | 32.5 – 29.5 litres of gasoline |
| | = | 28.5 – 27.5 litres of diesel |
| | = | 42.35 litres of propane |